



July 2009

**Section 9
Environmental Protection Act
R.S.O. 1990**

Sample Application Package

**Basic Comprehensive Certificate of Approval (Air and Noise)
for a Facility to Which s.20 of O. Reg. 419/05 Applies**

**(Using the AERMOD Dispersion Model,
and including an Acoustic Assessment Report)**

PIBS 6834e

Protecting our environment.



FOREWORD

This document has been produced by the Environmental Assessment and Approvals Branch as an example of a complete application package for a Basic Comprehensive Certificate of Approval for a facility to which s.20 of *Ontario Regulation 419/05, Air Pollution – Local Air Quality* applies using the AERMOD dispersion model and including an Acoustic Assessment Report. While every effort has been made to ensure the accuracy of the information contained in this document, it should not be construed as legal advice.

The following forms have been used in this sample application package:

- [Application for Approval \(Air & Noise\)](#)
- [Supporting Information Worksheet – Supplement to Application for Approval, EPA s.9](#)
- [Costs for EPA s.9 Applications, Supplement to Application for Approval](#)
- [Emission Summary and Dispersion Modeling Check-List](#)
- [Acoustic Assessment Report Check-List](#)

Instructions for completing these forms and additional information about Air & Noise Certificate of Approval is available in the following publications:

- [Green Facts: Certificates of Approval – Air and Noise](#)
- [Guide to Applying for Approval – Air and Noise](#)
- [Basic Comprehensive Certificates of Approval \(Air\) – User Guide](#)
- [Fact Sheet - Basic Comprehensive Certificates of Approval \(Air\)](#)
- [Guide – Application Costs for Air Emissions, EPA s. 9](#)
- [Procedure for Preparing an Emission Summary and Dispersion Modeling Report](#)
- [NPC-205, Sound Level Limits for Stationary Sources in Class 1 and 2 Areas \(Urban\)](#)
- [NPC-233, Information to be Submitted for Approval of Stationary Sources of Sound](#)
- [NPC 103, Model Municipal Noise Control By-Law Publication NPC](#)

For additional information about Ontario's air regulations and standards please visit <http://www.ene.gov.on.ca/en/air/ministry/index.php#reg>. For more information Certificates of Approval or to obtain an application package, please visit the Ministry of the Environment Internet site at <http://www.ene.gov.on.ca> or contact:

Ministry of the Environment
Environmental Assessment and Approvals Branch
2 St. Clair Ave. W, Floor 12A
Toronto, ON M4V 1L5

Toll Free: 1-800-461-6290
Phone: 416-314-8001
Fax: 416-314-8452
Email: EAABGen@ene.gov.on.ca



Virginia Trust-Worthy
General Manager
Acme Inc.
123 Anywhere Street
Anytown, Ontario
A1B 2C3

October 23, 2008

Environmental Assessment and Approvals Branch
Ontario Ministry of the Environment
2 St Clair West, Floor 12A
Toronto, Ontario
M4V 1L5

Dear Sir or Madam:

Re: Application for a Basic Comprehensive Certificate of Approval (Air & Noise), Acme Othertown Plant

Please find attached two copies of a complete application package for an amendment to Certificate of Approval (Air and Noise) Number 5678-GHIJKL for a Basic Comprehensive Certificate of Approval (Air & Noise) including the required fee and complete with the following documentation:

- Application Summary
- Completed Application Form
- Attachment 1 – Supporting Information Worksheet, Supplement to Application for Approval, EPA s.9 and supporting information
- Attachment 2 – Costs for EPA s.9 Applications, Supplement to Application for Approval
- Attachment 3 – Emission Summary and Dispersion Modelling Report
- Attachment 4 – Acoustic Assessment Report

Sincerely,

Virginia Trust-Worthy

Virginia Trust-Worthy
General Manager

Enc.

Cc: Othertown District Office

VTW/sa

SUMMARY

P.E.S. Stacks Inc. (P.E.S. Stacks) was retained by ACME Inc. (ACME) to prepare an application for a Basic Comprehensive Certificate of Approval (Air and Noise) (Basic Comprehensive CofA [Air and Noise]) under Section 9 of the Ontario *Environmental Protection Act* (EPA) for the facility located at 12 Capper Crescent in Othertown, Ontario (the Facility).

ACME produces coated metal products for use in the aviation industry. The main manufacturing process consists of coating metal components with a solvent based coating. The metal parts are fabricated offsite; the operations at the Facility are limited to the coating process. The Facility operates from 8:30AM to 5:30PM, seven days per week, up to 50 weeks per year.

The purpose of this application is to apply for a Basic Comprehensive CofA [Air and Noise] for the Acme Othertown facility, with a requested maximum facility production limit of 300,000 coated parts produced per year.

This application and supporting documentation were prepared in accordance with all applicable regulatory and Ministry requirements that were in effect at the time of application.

An Emission Summary and Dispersion Modelling (ESDM) Report was prepared in accordance with s.26 of Ontario Regulation 419/05 (O.Reg.419/05). In addition, guidance in the Ontario Ministry of the Environment (MOE) publication, *"Procedure for Preparing an Emission Summary and Dispersion Modelling Report"*, dated July 2005 (ESDM Procedure Document) was followed, as applicable.

The Facility was constructed after November 30, 2005 and operates under CofA (Air) Number 5678-GHIJKL, dated March 30, 2006. The North American Industrial Classification System (NAICS) code that applies to this Facility is 336410 Aerospace Product and Parts Manufacturing, which is listed in Schedule 5 of O.Reg.419/05. As such, s.20 of O.Reg.419/05 applies, and assessment of compliance was performed using an approved dispersion model (AERMOD) and the standards listed in Schedule 3 of O.Reg.419/05, as well as the applicable limits listed in the MOE publication, *"Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality"*, dated February 2008 (List of MOE POI Limits).

Contaminants released by the Facility that are not found on the List of MOE POI Limits are considered to be 'Contaminants with No Ministry POI Limits'. There are three 'Contaminants with No Ministry POI Limits' at the Facility. These contaminants were compared against the Jurisdictional Screening Limits (JSL) listed in the MOE document,

“Jurisdictional Screening Level (JSL) List A Screening Tool for Ontario Regulation 419: Air Pollution – Local Air Quality” (dated February 2008). Each contaminant concentration at Point of Impingement (POI) is below the respective JSL.

All of the predicted POI concentrations for contaminants listed in the Emission Summary Table that are included in the List of MOE POI Limits are below the corresponding limits. The highest maximum POI concentration is 80% of the 10-minute limit for xylene.

The Acoustic Assessment Report was prepared in accordance with the MOE publication NPC 233 *“Information to be Submitted for Approval of Stationary Sources of Sound”*, dated October 1995. Using site-specific noise measurements and manufacturer’s noise data, noise impacts from the operation of equipment at the facility were predicted at the most sensitive Points of Reception (PORs). Based on this data, and the recommended mitigation measures presented in the Acoustic Assessment Report, P.E.S. Stacks has predicted noise levels at the identified PORs (i.e., POR1, POR2, POR3 and POR4) during day-time hours that are at or below the MOE prescribed noise level limits. Therefore, the operations of equipment at the Facility with the recommended mitigation are predicted to be in compliance with MOE noise limits as defined in NPC-205.

In summary, this Basic Comprehensive CofA (Air and Noise) application demonstrates compliance with all applicable regulatory and Ministry requirements under Section 9 of the EPA. P.E.S. Stacks recommends that a Basic Comprehensive CofA (Air and Noise) be issued for the Facility.

For Office Use Only			
Reference Number	Payment Received	Date (y/m/d)	Initials
	\$		

General Information and Instructions

General:

Information requested in this form is collected under the authority of the *Environmental Protection Act*, R.S.O. 1990 (EPA) and the *Environmental Bill of Rights*, C. 28, Statutes of Ontario, 1993, (EBR) and will be used to evaluate applications for approval under Section 9 of the EPA. This form must be completed with respect to all requirements identified in the Guidance Material listed below in order for it to be considered an application for approval. **INCOMPLETE APPLICATIONS WILL BE RETURNED TO THE APPLICANT.** Even if the application is accepted as complete, the Ministry of the Environment may require additional information during the technical review of the application.

Instructions:

- Applicants are responsible for ensuring that they complete the most recent application form.** When completing this form, please refer to the following Guidance Material: the "Guide to Applying for Approval (Air & Noise), Section 9, EPA" and the "Guide - Application Costs for Air Emissions, S. 9, EPA". Application forms and supporting documentation are available from the Environmental Assessment and Approvals Branch toll free at 1-800-461-6290 (locally at 416-314-8001), from your local District Office of the Ministry of the Environment, and in the "Publications" section of the Ministry of the Environment website at <http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir>.
- Questions regarding completion and submission of this application should be directed to the Environmental Assessment and Approvals Branch of the Ministry of the Environment at the address below or to the local District Office which has jurisdiction over the area where the facility is located. A list of these District Offices is available on the Ministry of the Environment Internet site at <http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist>.
- A complete application package consists of a completed, signed application form and all required supporting information required by O. Reg. 419/05, identified in this form and the Guidance Material.
- Three application packages must be submitted to the Ministry of the Environment. Two application packages, the original and a copy must be sent to:

Ministry of the Environment,
Director, Environmental Assessment and Approvals Branch,
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario, M4V 1L5
Phone: 416-314-8001
Toll Free: 1-800-461-6290
Email: EAABGen@ene.gov.on.ca

These application packages should include a cheque, money order or credit card payment, in Canadian funds, made payable to the *Ontario Minister of Finance* for the applicable application fee. A third copy of the application package must be sent to the local District Office which has jurisdiction over the area where the facility is located.

- Information contained in this application form is not considered confidential and will be made available to the public upon request. Information submitted as supporting information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you. For more information, please refer to Section 4.9 of the "Guide to Applying for Approval (Air & Noise), Section 9, EPA".
- If the Applicant submits with the application a copy of their Master Business License (MBL) obtained from the Ministry of Government Services, the **shaded sections within this form do not need to be completed (provided the information required appears on the face of the MBL)**. For additional information on the MBL please refer to Section 4.1 of the "Guide to Applying for Approval (Air & Noise), Section 9, EPA".

1. Applicant Information (Owner of works/facility)

Applicant Name (legal name of individual or organization as evidenced by legal documents)		Business Identification Number
Acme Inc.		123456789
Business Name (the name under which the entity is operating or trading if different from the Applicant Name - also referred to as trade name)		
Applicant Type:		North American Industry Classification System (NAICS) Code
<input checked="" type="checkbox"/> Corporation	<input type="checkbox"/> Federal Government	336410 Aerospace Product and Parts Manufacturing
<input type="checkbox"/> Individual	<input type="checkbox"/> Municipal Government	
<input type="checkbox"/> Partnership	<input type="checkbox"/> Provincial Government	
<input type="checkbox"/> Sole Proprietor	<input type="checkbox"/> Other (describe):	
Business Activity Description (a description of the business endeavour, this may include products sold, services provided or machinery/equipment used, etc.)		
Acme Inc. produces coated metal products for use in the aviation industry. The main process consists of coating metal components with a solvent based coating. The metal parts are fabricated elsewhere; the operations at the facility are limited to the coating process.		

2. Applicant Physical Address

Civic Address- Street information (address that has civic numbering and street information includes street number, name, type and direction)				Unit Identifier (i.e. suite or apartment number)	
123 Anywhere St.					
Survey Address (used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory. Not required if Street Information is provided)					
Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan			
Lot		Conc.		Part	
				Reference Plan	
Municipality/Unorganized Township		County/District		Province/State	
Anytown		Prosperous County		Ontario	
				Country	
				Canada	
				Postal Code	
				A1B 2C3	

3. Site Information - (location where activity/works applied for is to take place)

Is this an application for a mobile facility?		Site Name		MOE District Office	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Acme Othertown Plant		Othertown District Office	
Address Information:					
Same as Applicant Physical Address?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If no, please provide site address information below)			
Site Address - Street information (address that has civic numbering and street information includes street number, name, type and direction)				Unit Identifier (i.e. suite or apartment number)	
12 Copper Crescent					
Survey Address (used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)					
Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan			
Lot		Conc.		Part	
				Reference Plan	
Non Address Information (includes any additional information to clarify applicants' physical location)					
Municipality/Unorganized Township		County/District		Postal Code	
Othertown		Prosperity County		A1B 2C3	
Geo Reference					
Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing
NAD 83	17 N			595528	4841476
Is the Site located in an area of development control as defined by the Niagara Escarpment Planning & Development Act (NEPDA)?					
<input type="checkbox"/> Yes If yes, please attach a copy of the NEPDA permit for proposed activity/work					
<input checked="" type="checkbox"/> No					
Is the Site located on the Oak Ridges Moraine Conservation Area as defined by the Oak Ridges Moraine Conservation Plan (ORMCP), a regulation made under the Oak Ridges Moraine Conservation Act (ORMCA)?					
<input type="checkbox"/> Yes If yes, please attach proof of Municipal planning approval for the proposed activity/work					
<input checked="" type="checkbox"/> No					
Is the Applicant the operating authority?					
<input checked="" type="checkbox"/> Yes					
<input type="checkbox"/> No If no, please attach the operating authority name, address and phone number					
Is the Applicant the owner of the land (site)?					
<input checked="" type="checkbox"/> Yes					
<input type="checkbox"/> No If no, please attach the owner's name, address and a signed letter granting consent for the installation and operation of the facilities					
Has this facility and one or more adjacent facilities been deemed to be one property under s.4 of O. Reg. 419/05?					
<input type="checkbox"/> Yes If yes, please attach supporting information					
<input checked="" type="checkbox"/> No *Note: all sources from the adjacent facility must be included in the Emission Summary and Dispersion Modelling Report.					

4. Project Technical Information Contact

Name		Company			
Joe Consultant		P.E.S. Stack Inc.			
Address Information:					
Same as Applicant Physical Address?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If no, please provide technical information contact address information below)			
Civic Address - Street information (address that has civic numbering and street information includes street number, name, type and direction)				Unit Identifier (i.e. suite or apartment number)	
234 Other Street				Suite 1	
Delivery Designator:					
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery (i.e., RR#3)					
Municipality		Postal Station		Province/State	
Othertown				Ontario	
				Country	
				Canada	
				Postal Code	
				A1B 2C3	
Telephone Number (including area code & extension)		Fax Number (including area code)		E-mail Address	
(905) 555 - 2345		(905) 555-2399		JoeConsultant@PES.com	

5. Project Information

Type of Application:

- ☐ New Certificate of Approval for this Facility
- Did construction of the facility begin after November 30, 2005? ☐ Yes ☐ No
- Does the NAICS Code for the facility fall into Schedule 4 or 5 of O. Reg. 419/05? ☐ Yes ☐ No
- ☒ Amendment to current Certificate of Approval
- ☐ Basic Comprehensive Certificate of Approval
- ☐ Consolidated Certificate of Approval

Current Certificate of Approval Number

5678-GHIJKL

Current Certificate of Approval Date of Issue (yyyy/mm/dd)

2006/03/30

Application Initiated by:

- ☒ Proponent ☐ Environmental Assessment and Approvals Branch ☐ Provincial Officer Order (attach copy) ☐ Other (specify): _____

List all other environmental approvals/permits applied or received in relation to this **project** under the *Environmental Protection Act*, the *Ontario Water Resources Act*, the *Safe Drinking Water Act*, *Environmental Assessment Act* or any other related legislation. (Please attach a separate list if more space is required).

Project Description Summary (If EBR is applicable, this summary will be used in the EBR posting notice)

This application is for a Basic Comprehensive Certificate of Approval (Air and Noise) for the Acme Othertown facility located in Othertown, Ontario. Air and noise emission sources at the facility include HVAC equipment, one (1) boiler, and equipment associated with the facility's main and custom production lines. Expected contaminants are volatile organic compounds and products of combustion. A maximum facility production limit of 300,000 coated parts per year is suggested.

Project Name (Project identifier to be used as a reference in correspondence)

Acme Othertown Plant

Project Schedule

Estimated date for start of construction/installation (yyyy/mm/dd)

2005/12/01

Estimated date for start of operation (yyyy/mm/dd)

2006/06/01

6. O. Reg. 419/05 Requirements

Which of the following sections of O. Reg. 419/05 applies to the facility?

- ☐ s.18 (Schedule 1) ☐ s.19 (Schedule 2) ☒ s.20 (Schedule 3)

If s.20 of O. Reg. 419/05 applies to the facility, do all new sources of contaminant meet the Good Engineering Practice (GEP) stack height requirements of s.15?

- ☐ Yes ☐ No

Has the facility been issued a notice or an order under s 7(1), 8(2), 10(2), 11(2), 13(2), 14(4), 17(3), 20(4) or 20(5)?

- ☐ Yes **If yes, please attach a copy of the notice, amended notice, revoked notice, order and/or additional supporting information**
- ☒ No

Has a request for approval for an alteration of a Schedule 3 standard under s. 32 of O. Reg. 419/05 been made for this facility?

- ☐ Yes **If yes, please attach a copy of ministry acknowledgement letter (if available) or an overview of the request**
- ☒ No

Do you exceed any s.30 Upper Risk Thresholds (Schedule 6)?

- ☐ Yes ☒ No **If yes, please attach additional supporting information**

7. Other Air Approvals for Facility – Please attach a separate list if more space is required

Separate list attached?

- ☐ Yes ☒ No

List all other environmental approvals issued to this facility under the Section 9 of the *Environmental Protection Act*.

8. Environmental Assessment Act (EAA) Requirements

Are the works for which this proposal is made subject to (or exempted from) the requirements of the EAA? ☐ Yes ☒ No

If "Yes," please check one of the following

☐ The works for which this application is made are exempt from the requirements of the EAA under:

☐ Section _____ of Ontario Regulation No. _____ or

☐ Declaration/Exemption Order Number _____

If Regulation, Declaration Order or Exemption Order does not refer directly to this facility, state in a covering letter or other document why it does apply to the facility – Please provide supporting information

☐ The works for which this application is made have fulfilled all of the requirements of the EAA through the completion of the Municipal Class EA process in accordance with the procedures set out in:

☐ Schedule A ☐ Schedule B ☐ Schedule C

If Schedule A, was the project planned in accordance with section A.2.9 – Integration with the *Planning Act* of the Class EA?

☐ Yes ☐ No

If Yes, please submit a copy of the summary required by section A.2.9.3 of the Class EA and a copy of the Planning Act notice.

If Schedule B or C of the Municipal Class EA, please submit a copy of the Notice of Completion.

Were Part II Order requests received? ☐ Yes ☐ No

If Yes, please submit a copy of the Minister's decision letter.

☐ The works for which this application is made have fulfilled all of the requirements of the EAA through the completion of the requirements of another class EA process:

Name of Class EA: _____

Schedule/Group/Category (if applicable): _____

If applicable, please submit a copy of the Notice of Completion.

Were Part II Order requests received? ☐ Yes ☐ No

If Yes, please submit a copy of the Minister's decision letter.

☐ The works for which this application is made have fulfilled all of the requirements for the Environmental Screening Process pursuant to O. Reg. 116/01 of the EAA through:

☐ Completion of an Environmental Screening.

☐ Completion of an Environmental Review

Please submit the Statement of Completion, and indicate if any Elevation Request(s) were received.

If Elevation Request(s) were received, please submit a copy of the Director's decision letter.

If the Director's decision was appealed to the Minister, please submit a copy of the Minister's decision letter.

☐ The works for which this application is made have fulfilled all of the requirements of the EAA through the preparation of an environmental assessment.

Please submit a copy of the signed Notice of Approval.

Was this undertaking designated subject to the EAA by regulation? ☐ Yes ☐ No

If yes, please indicate the regulation: _____

9. Environmental Bill of Rights Requirements (EBR) Requirements

Is this a proposal for a prescribed instrument under EBR? ☒ Yes ☐ No

If "Yes", is this proposal exempted from EBR requirements? ☐ Yes ☒ No

If "Yes," please check one of the following

☐ This proposal has been considered in a substantially equivalent process or by a decision of a tribunal. **Please provide supporting information**

☐ This proposal is for an amendment to or revocation of an existing Certificate of Approval that is not environmentally significant. **Please provide supporting information**

☐ This proposal is for an emergency situation. **Please provide supporting information**

☐ This proposal has been subject to or exempted from EAA Requirements. **Please provide supporting information**

10. Additional Public Consultation/Notification

Separate list attached? ☐ Yes ☒ No

Specify all public consultation/notification (such as public hearings, notification of First Nations, request for an Alternative Standard under s.32 of O. Reg. 419/05, etc.) related to the project that have been completed or are in the process of being completed. Please attach a separate list describing each of these consultation activities, the results achieved, and planned future consultation activities.

11. List of Attachments - This is a list of all supporting information to this application and is subject to the Freedom of Information and Privacy Protection Act and the Environmental Bill of Rights.

Attachment	Attached	Reference	Can be disclosed
Information Required by Application Form			
Supporting Information Worksheet - Supplement to Application for Approval, EPA S.9 (PIBS 4873)	<input checked="" type="checkbox"/> Yes	Attachment 1, Supporting Info.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Costs for EPA S.9 Applications - Supplement to Application for Approval (PIBS 4108)	<input checked="" type="checkbox"/> Yes	Attachment 2, Cost Sheet	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Application Fee (cheque or money order attached or credit card information provided)	<input checked="" type="checkbox"/> Yes		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Information Supporting Compliance with O. Reg. 419/05			
Emission Summary and Dispersion Modelling (ESDM) Report prepared in accordance with s.22 of O. Reg. 419/05 (including signed checklist – PIBS 5357e)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If no, indicate why: <input type="checkbox"/> Minor Amendment (no technical review) <input type="checkbox"/> Equipment Subject to Streamlined Review <input type="checkbox"/> Subsurface Approval	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Supporting Information for a Maximum Ground Level Concentration Acceptability Request for Compounds with no Ministry POI Limit - Supplement to Application for Approval, EPA S.9 (PIBS 4872)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No
Information Supporting Compliance with Noise and Vibration Guidelines			
Noise Screening Process for S.9 Applications -Supplement to Application for Approval (PIBS 4871)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the Equipment/Facility meet minimum separation distance?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No
If the Equipment/Facility does not meet minimum separation distance, then attach:			
1. Acoustic Assessment Report including signed checklist (PIBS 5356e)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Attachment 4, Noise	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. Vibration Assessment Report	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No
Other Information Supporting Compliance With Applicable Regulations and Guidelines or to Describe the Project (include separate list if required)			
	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No

12. Payment Information

Amount Enclosed: \$ 1800 Please attach completed "Costs for EPA s.9 Applications – Supplement to Application for Approval" (PIBS 4108).		
Method of Payment <input type="checkbox"/> Cheque <input type="checkbox"/> Money Order <input checked="" type="checkbox"/> VISA <input type="checkbox"/> MasterCard <input type="checkbox"/> American Express		
Credit Card Information (if paying by VISA, MasterCard or American Express)*		
Name on Card (please print) Virginia Trust-Worthy	Credit Card Number 4567 6541 2345 4321	Expiry Date (m/y) 12/09
Cardholder Signature <i>Virginia Trust-Worthy</i>	Date (y/m/d) 2008/10/23	

*NOTE: credit card accepted for payments UNDER \$10,000.00 only.

13. Statement of Applicant

I, the undersigned hereby declare that, to the best of my knowledge:				
<ul style="list-style-type: none"> The information contained herein and the information submitted in support of this application is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the <i>Environmental Protection Act</i>. The Project Technical Information Contact identified in section 5 of this form is authorized to act on my behalf for the purpose of obtaining approval under Section 9 of the EPA for the equipment/processes identified herein. I have used the most recent application form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or the Environmental Assessment and Approvals Branch at 1-800-461-6290) and I have included all necessary information required by O. Reg. 419/05, identified on this form and in the Guidance Material. 				
Name of Signing Authority (please print) Virginia Trust-Worthy		Title General Manager		
Telephone Number (including area code & extension) (905) 555 - 1985		Fax Number (including area code) (905) 555 - 1967		E-mail Address VTrust@acmeinc.com
Signature <i>Virginia Trust-Worthy</i>		Date (y/m/d) 2008/10/23		
Address Information:				
Same as Applicant Physical Address? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If no, please provide signing authority mailing address information below)				
Civic Address - Street information (address that has civic numbering and street information includes street number, name, type and direction)				Unit Identifier (i.e. suite or apartment number)
Delivery Designator: If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery (i.e., RR#3) _____				
Municipality	Postal Station	Province/State	Country	Postal Code

ATTACHMENT 1
SUPPORTING INFORMATION WORKSHEET, SUPPLEMENT TO
APPLICATION FOR APPROVAL, EPA S.9
AND SUPPORTING INFORMATION INCLUDING:

MASTER BUSINESS LICENCE
COPY OF EXISTING COFA (AIR)

SUPPORTING INFORMATION WORKSHEET SUPPLEMENT TO APPLICATION FOR APPROVAL, EPA S.9

This document lists the attachments to the Section 9 Application Form that may be required from an applicant. This worksheet is intended to assist applicants in completing the Application Form and should be read in conjunction with the Guide to Applying for Approval (Air and Noise) dated February, 2005.

This worksheet must be attached to a Section 9 Application Form to be considered complete

	Attachment	Guide to Applying Reference	Required if...	Included	Reference	Confidential
1.	Proof of Legal Name of Applicant	Section 4.1	Always Required unless Master Business Licence is submitted	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		Not Applicable
2.	Copy of Master Business Licence	Section 4.2	Applicant is an Ontario Company and wishes to simplify the application process	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A	Attach. 1	Not Applicable
3.	Legal Survey	Section 4.3	If survey address is provided	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		
4.	Copy of NEDPA Permit	Section 4.3	Facility is within an area of development control as defined by the Niagara Escarpment Planning and Development Act	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No
5.	Copy of Municipal Planning Approval (ORMCA)	Section 4.3	Facility is within the Oak Ridges Moraine Conservation Area	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No
6.	Name, Address and Phone Number of the Operating Authority	Section 4.3	Equipment will be operated not by the applicant but by an Operating Authority	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No
7.	Name, Address and consent of the land/site owner for the installation/construction and operation of the equipment/facility	Section 4.3	Applicant is not the owner of the site where the facility is located	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No

	Attachment	Guide to Applying Reference	Required if...	Included	Reference	Confidential
8.	Copy of current Certificate of Approval	Section 4.5	Application is for an amendment to a current CofA	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A	Attached	Not Applicable
9.	List of all environmental approvals/permits applied for relating to this project or received in relation to this project.	Section 4.5	Other environmental approvals/permits have been applied for or issued under the EPA or OWRA in relation to this project only	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		Not Applicable
10.	Copy of Provincial Officer's Order requiring submission of application	Section 4.5	Application is a result of a Provincial Officer's Order	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		Not Applicable
11.	List of all approvals issued to this facility under Section 9 of the <i>Environmental Protection Act</i>	Section 4.6	Previous Section 9 approvals have been issued to the facility	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		Not Applicable
12.	Supporting information that proposal is not a Prescribed instrument under the EBR	Section 4.6	Application meets the requirements of O. Reg 681/94	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No
13.	Supporting information relating to exemption from the public participation requirements of the <i>Environmental Bill of Rights</i> .	Section 4.7	Applicant is requesting that the proposal is exempt from posting on the Environmental Registry	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No
14.	Supporting information relating to exemption from or fulfilment of requirements under the <i>Environmental Assessment Act</i> .	Section 4.7	Application is part of an undertaking subject to the EAA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No
15.	List describing public consultation activities related to this project	Section 4.7,8	Applicant is involved in any public consultation / notification activities in addition to EBR / EAA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No
16.	Application Fee	Section 4.10	Always Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A		Not Applicable
17.	Financial Assurance	Section 2	If The Section 9 Director determines that Financial Assurance is necessary based on the nature of the Application (Waste Disposal Site or Remediation for example)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No
18.	Applicant Fee Worksheet	Section 4.9	Always Required	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A	Attached	Not Applicable

Please note: the release of information contained in application forms and documentation submitted in support of applications for approval is subject to the provisions of the *Freedom of Information and Protection of Privacy Act*. This Act defines what may and may not be disclosed to the public, and is used to assess all requests for information contained in the documents on file with an application for approval.

The information submitted with an application for approval may also be subject to the *Environmental Bill of Rights*. In those situations, the application and the associated non-confidential supporting documentation is made available for review by members of the public.

The applicants should therefore identify all documents as noted above which are to be considered confidential and must provide detailed evidence in support of this claim. This evidence will be one of the factors the ministry would consider when making a decision regarding disclosure of specific documents on file.





Ontario

ACME Inc.
123 Anywhere Street,
Anytown, ON
A1B 2C3

Site Location: ACME Othertown Plant
12 Capper Crescent, Municipality of Othertown, Prosperity County

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- one (1) exhaust, serving the main production line, discharging to the atmosphere at a maximum volumetric flow rate of 5.3 cubic metres per second through a stack, identified as source S-1, having an exit diameter of 0.6 metre, extending 3.0 metres above the roof and 11.2 metres above grade;
- one (1) exhaust, serving the main production line, discharging to the atmosphere at a maximum volumetric flow rate of 3.2 cubic metres per second through a stack, identified as source S-2, having an exit diameter of 0.5 metre, extending 3.0 metres above the roof and 11.2 metres above grade;
- one (1) exhaust, serving the preparation booth, discharging to the atmosphere at a maximum volumetric flow rate of 3.2 cubic metres per second through a stack, identified as source S-7, having an exit diameter of 0.5 metre, extending 3.0 metres above the roof and 11.2 metres above grade;
- one (1) natural gas-fired boiler, having a maximum heat input rating of 9,900,000 BTU per hour, discharging to the atmosphere at a maximum volumetric flow rate of 1.2 cubic metres per second through a stack, identified as source H17, having an exit diameter of 0.5 metre, extending 7.1 metres above the roof and 15.3 metres above grade;
- sixteen (16) natural gas-fired unit heaters, identified as H-1 to H-16, having a total maximum heat input of 12,800,000 BTU per hour;

all in accordance with the Application for Approval (Air) submitted by ACME Inc., dated November 20, 2005, and received on November 23, 2005, and signed by Virginia Trust-Worty, General Manager; and the supporting information, including the Emission Summary and Dispersion Modelling Report, submitted by P.E.S. Stacks Inc., dated November 15, 2005 and signed by Joe Consultant.

ATTACHMENT 2
COSTS FOR EPA S.9 APPLICATIONS, SUPPLEMENT TO
APPLICATION FOR APPROVAL

COSTS FOR EPA s.9 APPLICATIONS SUPPLEMENT TO APPLICATION FOR APPROVAL

Information requested in this form is collected under the authority of the Environmental Protection Act, R.S.O. 1990 (EPA) and the Environmental Bill of Rights, c. 28, Statutes of Ontario, 1993, (EBR) and will be used to evaluate applications for approval under Section 9 of the EPA. This form is a supplement to the Application for Approval (Air & Noise) and should be submitted with all applications for approval under Section 9 of the EPA.

O.Reg. 363/98 "Fees – Certificates of Approval" requires applicants for a certificate of approval under Section 9 of the EPA to pay a fee at the time of submitting the application. This fee must be calculated in accordance with the Fees Regulation. **Applications that do not include the correct fee amount will not be processed by the EAAB.** This form is intended to assist applicants in calculating the correct fee amount in accordance with the Fees Regulation. For instructions/assistance completing this form, please refer to the publication titled: "Guide: Application Costs for Air Emissions, s.9 Environmental Protection Act". This form and associated publications are available on the Ministry of the Environment web site at <http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir> or by contacting the Environmental Assessment and Approvals Branch at 1-800-461-6290 or (416) 314-8001.

Company Name Acme Inc.	Site Name Acme Othertown Plant
Site Address - Street information (includes street number, name, type and direction) 12 Capper Crescent	Unit Identifier (unit, suite, apt, etc)
Survey Address (used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)	
Non Address Information (includes any additional information to clarify clients' physical location)	
Municipality/Unorganized Township Othertown	County/District Prosperous County
Postal Code A1B 2C3	

Application Type: Indicate the applicable aspect(s) of the application and complete the corresponding section(s) of this form.

- ☒ Application that requires technical review (Section 1)
Applications for a Greenfield facility, an existing facility that does not have any approvals, amendment to an existing CofA to add new equipment or to consolidate existing equipment into one CofA or for a Basic Comprehensive Certificate of Approval
- ☐ Revocation of an existing approval that requires technical review (Section 2)
This application is to revoke an existing approval or condition on a certificate of approval that requires a technical review such as a groundwater remediation system, air pollution control equipment (cyclone, dust collector); noise control measures (silencer, barrier)
- ☐ Administrative amendment of an existing approval (Section 3)
This application is for a minor amendment to an existing approval such as a minor technical correction, etc, that does not require a technical review
- ☐ Fee exempted amendment or revocation of an existing approval that does not require technical review (Section 4)
This application is required by a condition on a Certificate of Approval, or to revoke a CofA for equipment/facility that is no longer in operation and does not require technical review

Note: If you are seeking a Preliminary Review as defined by the Fee Regulation please contact the EAAB to discuss prior to proceeding with the application.

SECTION 1: Application that Requires Technical Review
Complete tables 1, 2 & 3 and enter your information in the summary table below.

(√)		Description	Cost
<input checked="" type="checkbox"/>	A	Administrative processing (always required for all applications)	\$ 200
<input type="checkbox"/>	B	Fixed Cost Review for Equipment (Table 1)	\$
<input checked="" type="checkbox"/>	C	Emission Summary and Dispersion Modelling Report Review (Table 2)	\$ 1600
<input type="checkbox"/>	D	Noise Assessment Review (Table 3)	\$
		TOTAL COST:	\$ 1800

TABLE 1: Fixed Cost Review for Equipment

This table is to be used for new applications or for amendments or revocation to an existing approval. Applicants must identify all equipment that is the subject of the application and include the equipment in the appropriate category on the table. Sections used should be indicated in the left hand column. Equipment that has been previously approved does not have to be included on the table provided that the existing approved equipment is not being modified by the application.

Table 1.1 Equipment subject to Site-wide Fees					
(√)		Description	Equipment Specification	Cost	Applicable Fee
<input type="checkbox"/>	1.1.1	Combustion Equipment that uses natural gas, propane, no. 2 oil, landfill gas or sewage treatment gas for fuel for the purpose of providing comfort heating or emergency power, producing hot water or steam, or heating material in a system that does not discharge to the atmosphere	Total Heat input of all units ≤ 50,000,000 kJ/hr	\$ 400	\$
<input type="checkbox"/>	1.1.2	Storage tanks	N/A	\$ 400	\$
<input type="checkbox"/>	1.1.3	Welding operations that use a maximum of 10 kilograms of welding rod per hour	N/A	\$ 400	\$
<input type="checkbox"/>	1.1.4	The application is for an amendment to an existing approval which will not result in an increase in the discharge of any contaminant that was reviewed by the Director for the purpose of issuing the existing certificate	N/A	\$400	\$

Applicable Fee is based on the type of equipment, if the equipment does not meet the description or specification then use table 1.3

Table 1.2 Equipment Subject to Individual Fees						
(✓)	Description		Quantity of Equipment		Cost	Applicable Fee
			Formula to Calculate A	A		
<input type="checkbox"/>	1.2.1	Combustion Equipment that uses waste derived fuel for the purpose of providing comfort heating, burning ≤ 15 litres per hour	# of pieces of combustion equipment		x \$400 =	\$
<input type="checkbox"/>	1.2.2	Heat cleaning ovens used for parts cleaning, and associated parts washers or degreasing equipment, other than solvent degreasing equipment	# of heat cleaning ovens		x \$400 =	\$
<input type="checkbox"/>	1.2.3	Cooling towers	# of cooling towers divided by two, rounded up to the next whole number		x \$400 =	\$
<input type="checkbox"/>	1.2.4	Equipment used to control emissions of contaminants, other than a fume incinerator.	# of pieces of pollution control equipment		x \$400 =	\$
<input type="checkbox"/>	1.2.5	Laboratory fume hoods	# of laboratory fume hoods divided by 5, rounded up to the next whole number		x \$400 =	\$
<input type="checkbox"/>	1.2.6	Paint spray booths and associated equipment that have a design capacity of up to 8 litres per hour of paint	# of paint spray booths		x \$400 =	\$
<input type="checkbox"/>	1.2.7	Grain dryers	# of grain dryers		x \$400 =	\$

Applicable Fee is calculated based on the quantity of equipment, calculated using the formula specific for the equipment. Note the formula provides whole numbers only.

Table 1.3 Equipment not otherwise specified in the table					
(√)	Description		Number of Sources	Cost	Applicable Fee
<input type="checkbox"/>	1.3.1	Equipment with a flow rate of less than or equal to 1.5 m ³ /second		x \$ 400 =	\$
<input type="checkbox"/>	1.3.2	Equipment with a flow rate of greater than 1.5 m ³ /second		x \$1,200 =	\$
<input type="checkbox"/>	1.3.3	If one or more of the contaminants to which the application relates is not represented in the Ministry of the Environment publication titled "Summary of Point Impingement Standards, Point of Impingement Guidelines and Ambient Air Quality Criteria (AAQCs)" dated, September 2001 as amended from time to time.	N/A	\$300	\$
TOTAL COST TABLE 1					\$

Equipment (any plant, structure, apparatus, mechanism or thing that will discharge air and contaminants) that is the subject of the application that is not directly specified by Table 1.1 or 1.2 must be placed in one of the two categories in Table 1.3.

For equipment contained in this section of the table, multiple points of emission which satisfy specifically defined conditions of similarity will be considered equivalent to a single source when determining the application fee for a Certificate of Approval (Air).

The term "source" is defined in *Ontario Reg. 363/98, Fees – Certificates of Approval* as follows:

"source" means an individual point of emission or a distinct process or area from which emissions may originate, and,

- (a) if more than one stack or vent arises from a common process, that process is a source and the individual points or emission are not sources, and
- (b) if two or more separate processes, each of which discharges a distinct mixture of contaminants, are discharged to a common stack, each of the separate processes is a source.

Points of emission are considered "similar" if they satisfy the following conditions:

- (a) equivalent process activity;
- (b) common contaminant emissions;
- (c) emissions estimates are calculated using equivalent methods or formulas (with an allowance for modified process parameters); and
- (d) dispersion calculations are performed according to equivalent methods (with an allowance for modified process parameters) and considering equivalent Points of Impingement.

TABLE 2: Emission Summary and Dispersion Modelling Report Review

This table is to be used for new equipment applications at existing facilities or for amendments to existing approvals. Applicants must identify the number of sources described in the ESDM Report with contaminants common to the equipment forming the subject of the application to determine the cost as outlined in the table. Sources that have been approved and do not emit common contaminants do not have to be included in the determination of the number of sources.

(√)	Number of Sources	Previously Reviewed?	Cost
<input type="checkbox"/>	5 or less	No	\$ 0
<input type="checkbox"/>		Yes	\$ 0
<input type="checkbox"/>	6 to 10	No	\$ 1,000
<input type="checkbox"/>		Yes	\$ 800
<input type="checkbox"/>	11 to 20	No	\$ 2,000
<input checked="" type="checkbox"/>		Yes	\$ 1,600
<input type="checkbox"/>	More than 20	No	\$ 3,000
<input type="checkbox"/>		Yes	\$ 2,400
TOTAL COST TABLE 2			\$ 1600

A "source" may include multiple points of emission, provided the points of emission are "similar".

Points of emission are considered "similar" if they satisfy the following conditions:

- (a) equivalent process activity;
- (b) common contaminant emissions;
- (c) emissions estimates are based on equivalent methods or formulas (with an allowance for modified process parameters); and
- (d) dispersion calculations are performed according to equivalent methods (with an allowance for modified process parameters) and considering equivalent Points of Impingement

When the ESDM Report is only for new sources, not previously approved, there is no cost for this review; it is included in the fixed cost for the particular discharge or equipment calculated under Table 1.

An ESDM Report may be considered previously reviewed when the equipment specified in the ESDM Report has been used to obtain a Certificate of Approval (Air) for that equipment in the past.

TABLE 3: Noise Assessment Review

This table is to be used for new applications or for amendments or revocation to an existing approval. Applicants must complete the Noise Screening Procedure included as an appendix in the ministry Document "Guide to Applying for Approval (Air and Noise)" dated January, 2005. If an applicant meets the screening requirements then no fee is required under this table. If the applicant does not meet the screening requirements and an Acoustic Assessment Report is required then the Applicants must identify all equipment that is included as a noise source in the Acoustic Assessment Report in the appropriate category on the following table. Sections used should be indicated within the left hand column. Equipment that has been previously approved does not have to be included on the table provided that the existing approved equipment is not being modified by the application.

Table 3.1 Equipment Subject to Individual Fees						
(✓)	Description		Quantity of Equipment		Cost	Applicable Fee
			Formula to Calculate A	A		
<input type="checkbox"/>	3.1.1	Arc Furnaces	# of pieces		x \$2,250 =	\$
<input type="checkbox"/>	3.1.2	Asphalt Plants	# of pieces		x \$2,250 =	\$
<input type="checkbox"/>	3.1.3	Blow Down Devices	# of pieces		x \$2,250 =	\$
<input type="checkbox"/>	3.1.4	Co-generation Facilities	# of pieces		x \$2,250 =	\$
<input type="checkbox"/>	3.1.5	Crushing Operations	# of pieces		x \$2,250 =	\$
<input type="checkbox"/>	3.1.6	Flares	# of pieces		x \$2,250 =	\$
<input type="checkbox"/>	3.1.7	Gas Turbines	# of pieces		x \$2,250 =	\$
<input type="checkbox"/>	3.1.8	Pressure Blowers or Large Induced Draft Fans (flow rate > 47m ³ /second or static pressure > 1.25 kilopascals)	# of pieces		x \$2,250 =	\$

Table 3.2 Equipment Not Otherwise Specified in the Table					
(✓)	Description		First 5 Pieces of Equipment	Additional Equipment	Cost
<input type="checkbox"/>	3.2.1	Equipment that has not previously been reviewed by the Section 9 Director in connection with an application for a certificate of approval with respect to the facility	\$400	\$100 x _____	\$
<input type="checkbox"/>	3.2.2	Equipment is identical to equipment for which a noise assessment was previously reviewed by the Section 9 Director in connection with an application for a certificate of approval with respect to the facility	\$200	\$50 x _____	\$

TOTAL COST TABLE 3					\$
---------------------------	--	--	--	--	-----------

SECTION 2: Revocation of an Existing Approval that Requires Technical Review
Complete tables 1, 2 & 3 and enter your information in the summary table below

(√)		Category	Cost
<input type="checkbox"/>	A	Administrative processing (always required for all applications)	\$ 200
<input type="checkbox"/>	B	Fixed Cost Review for Equipment (Table 1)	\$
<input type="checkbox"/>	C	Emission Summary and Dispersion Modelling Report Review (Table 2)	\$
<input type="checkbox"/>	D	Noise Assessment Review (Table 3)	\$
		TOTAL COST:	\$

SECTION 3: Administrative Amendment of an Existing Approval

(√)	Description	Cost
<input type="checkbox"/>	Administrative amendment (no technical review involved)	\$ 100
	TOTAL COST:	\$

SECTION 4: Fee Exempted Amendment or Revocation of an Existing Approval that does not require technical review

(√)	Description	Cost
<input type="checkbox"/>	Administrative revocation (no technical review involved)	\$ 0
<input type="checkbox"/>	Any revocation requested as a result of requirements imposed by conditions of an existing approval	\$ 0
<input type="checkbox"/>	Any amendment requested as a result of requirements imposed by conditions of an existing approval	\$ 0
	TOTAL COST:	\$

ATTACHMENT 3
EMISSION SUMMARY AND DISPERSION MODELLING REPORT

EMISSION SUMMARY
AND DISPERSION MODELLING REPORT
ACME OTHERTOWN PLANT

Version 1.0

ACME Inc.
12 Capper Crescent
Othertown, ON

Prepared by:
P.E.S. Stacks Inc.
Toronto, ON

October 23, 2008

Project Number 08-5555-420

Version Control

Rev.	Date	Revision Description	Reviewer Initials
1.0	October, 2008	PROPOSED - Original document for Basic Comprehensive Certificate of Approval Application	JBC

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
TABLE OF CONTENTS	II
ESDM REPORT CHECKLIST	IV
EXECUTIVE SUMMARY AND EMISSION SUMMARY TABLE	VI
1.0 INTRODUCTION AND FACILITY DESCRIPTION	1
1.1 Purpose and Scope of ESDM Report	1
1.2 Description of Processes and NAICS Code(s)	1
1.3 Description of Products and Raw Material	2
1.4 Process Flow Diagram	2
1.5 Operating Schedule	3
1.6 Facility Production Limit	3
2.0 INITIAL IDENTIFICATION OF SOURCES AND CONTAMINANTS	4
2.1 Sources and Contaminants Identification Table	4
3.0 ASSESSMENT OF THE SIGNIFICANCE OF CONTAMINANTS AND SOURCES	5
3.1 Identification of Significant Contaminants and Sources	5
3.2 Rationale for Assessment	6
4.0 OPERATING CONDITIONS, EMISSION ESTIMATING AND DATA QUALITY	7
4.1 Description of Operating Conditions	7
4.2 Explanation of the Methods Used to Calculate Emission Rates	7
4.3 Sample Calculations	8
4.4 Assessment of Data Quality	8
5.0 SOURCE SUMMARY TABLE AND SITE PLAN	9
5.1 Source Summary Table	9
5.2 Site Plan	9
6.0 DISPERSION MODELLING	10
6.1 Dispersion Modelling Input Summary Table	10
6.2 Coordinate System	11
6.3 Meteorology and Land Use Data	11
6.4 Terrain	11
6.5 Receptors	12
6.6 Building Downwash	12
6.7 Deposition	13
6.8 Averaging Time and Conversions	13
6.9 Dispersion Modelling Options	13
6.10 Dispersion Modelling Input and Output Files	14
7.0 EMISSION SUMMARY TABLE AND CONCLUSIONS	15
7.1 Emission Summary Table	15
7.2 Assessment of Contaminants with no MOE POI Limits	15
7.3 Conclusions	16

LIST OF APPENDICES

- Appendix A Supporting Calculations
- Appendix B Supporting Information for Assessment of Negligibility
- Appendix C Dispersion Modelling Data and Electronic Files (on CD)
- Appendix D Facility MSDS's

LIST OF TABLES

- Table 1 Sources and Contaminants Identification Table
- Table 2 Source Summary Table
- Table 3 Dispersion Modelling Input Summary Table
- Table 4 Dispersion Modelling Source Summary Table
- Table 5 Emission Summary Table

LIST OF FIGURES

- Figure 1 Site Location Plan
- Figure 2 Land Use Zoning Designation Plan
- Figure 3 Site Plan and Roof Layout
- Figure 4 Process Flow Diagram
- Figure 5 Dispersion Modelling Plan
- Figure 6 3 Kilometre Satellite Image
- Figure 7 Site Plan – Terrain Elevations
- Figure 8 Dispersion Modelling Receptors
- Figure 9 BPIP Plan

EMISSION SUMMARY AND DISPERSION MODELLING REPORT CHECKLIST

Company Name: Acme Inc.

Company Address: 123 Anywhere Street, Anytown, ON, A1B 2C3

Location of Facility: 12 Capper Crescent, Othertown, ON, A1B 2C3

The attached Emission Summary and Dispersion Modeling Report was prepared in accordance with s.26 of O. Reg. 419/05 and the guidance in the MOE document "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July, 2005 and "Air Dispersion Modelling Guideline for Ontario" dated July 2005 and the minimum required information identified in the check-list on the reverse of this sheet has been submitted.

Company Contact: Acme Inc.

Name: Virginia Trust-Worthy

Title: General Manager

Phone Number: (905) 555 - 1985

Signature: Virginia Trust-Worthy

Date: October 23, 2008

Technical Contact: _____

Name: Joe Consultant

Representing: P.E.S. Stacks Inc.

Phone Number: (905) 555 - 2345

Signature: Joe Consultant

Date: October 23, 2008

EMISSION SUMMARY AND DISPERSION MODELLING REPORT CHECKLIST

Required Information			
		Submitted	Explanation/Reference
Executive Summary and Emission Summary Table			
1.1	Overview of ESDM Report	<input checked="" type="checkbox"/> Yes	Executive Summary
1.2	Emission Summary Table	<input checked="" type="checkbox"/> Yes	Executive Summary
1.0 Introduction and Facility Description			
1.1	Purpose and Scope of ESDM Report (when report only represents a portion of facility)	<input checked="" type="checkbox"/> Yes	Section 1.1
1.2	Description of Processes and NAICS code(s)	<input checked="" type="checkbox"/> Yes	Section 1.2
1.3	Description of Products and Raw Materials	<input checked="" type="checkbox"/> Yes	Section 1.3
1.4	Process Flow Diagram	<input checked="" type="checkbox"/> Yes	Section 1.4 & Figure 4
1.5	Operating Schedule	<input checked="" type="checkbox"/> Yes	Section 1.5
2.0 Initial Identification of Sources and Contaminants			
2.1	Sources and Contaminants Identification Table	<input checked="" type="checkbox"/> Yes	Section 2.1 & Table 1
3.0 Assessment of the Significance of Contaminants and Sources			
3.1	Identification of Negligible Contaminants and Sources	<input checked="" type="checkbox"/> Yes	Section 3.1
3.2	Rationale for Assessment	<input checked="" type="checkbox"/> Yes	Section 3.2 & Appendix B
4.0 Operating Conditions, Emission Estimating and Data Quality			
4.1	Description of operating conditions, for each significant contaminant that results in the maximum POI concentration for that contaminant	<input checked="" type="checkbox"/> Yes	Section 4.1 & Appendix A
4.2	Explanation of Method used to calculate the emission rate for each contaminant	<input checked="" type="checkbox"/> Yes	Section 4.2 & Appendix A
4.3	Sample calculation for each method	<input checked="" type="checkbox"/> Yes	Section 4.3 & Appendix A
4.4	Assessment of Data Quality for each emission rate	<input checked="" type="checkbox"/> Yes	Section 4.4
5.0 Source Summary Table and Property Plan			
5.1	Source Summary Table	<input checked="" type="checkbox"/> Yes	Section 5.1 & Table 2
5.2	Site Plan (scalable)	<input checked="" type="checkbox"/> Yes	Section 5.2 & Figure 3
6.0 Dispersion Modelling			
6.1	Dispersion Modelling Input Summary Table	<input checked="" type="checkbox"/> Yes	Section 6.1 & Table 3
6.2	Land Use Zoning Designation Plan	<input checked="" type="checkbox"/> Yes	Section 6.2 & Figure 2
6.3	Dispersion Modelling Input and Output Files	<input checked="" type="checkbox"/> Yes	Section 6.3 & Appendix C
7.0 Emission Summary Table and Conclusions			
7.1	Emission Summary Table	<input checked="" type="checkbox"/> Yes	Section 7.1 & Table 4
7.2	Assessment of Contaminants with no MOE POI Limits	<input checked="" type="checkbox"/> Yes	Section 7.2
7.3	Conclusions	<input checked="" type="checkbox"/> Yes	Section 7.3
Appendices (Provide supporting information or details such as...)			
Supporting Calculations		<input checked="" type="checkbox"/> Yes	Appendix A
Supporting Information for Assessment of Negligibility		<input checked="" type="checkbox"/> Yes	Appendix B
Dispersion Modelling Printouts		<input checked="" type="checkbox"/> Yes	Appendix C
Material Safety Datasheets		<input checked="" type="checkbox"/> Yes	Appendix D
		<input type="checkbox"/> Yes	
		<input type="checkbox"/> Yes	
		<input type="checkbox"/> Yes	

EXECUTIVE SUMMARY AND EMISSION SUMMARY TABLE

This Emission Summary and Dispersion Modelling (ESDM) Report was prepared to support an application for a Basic Comprehensive Certificate of Approval (CofA). The ESDM Report was prepared in accordance with s.26 of Ontario Regulation 419/05 (O. Reg. 419/05) to support the Basic Comprehensive CofA application. In addition, guidance in the Ontario Ministry of the Environment (MOE) publication "*Procedure for Preparing an Emission Summary and Dispersion Modelling Report*" dated July 2005 (ESDM Procedure Document) was followed, as applicable.

Acme Inc. (ACME) operates a manufacturing facility located at 12 Capper Crescent in Othertown, Ontario (the Facility). The Facility is located in an area zoned for industrial use. ACME produces coated metal products for the aviation industry. The main manufacturing process consists of coating metal components with a solvent based coating. The metal products are fabricated offsite.

The Facility was constructed after November 30, 2005 and operates under CofA (Air) Number 5678-GHIJKL, dated March 30, 2006. The North American Industrial Classification System (NAICS) code that applies to this Facility is 336410 Aerospace Product and Parts Manufacturing. As such, s.20 of O.Reg.419/05 applies, and assessment of compliance was performed using an approved dispersion model (AERMOD) and the standards listed in Schedule 3 of O.Reg.419/05, as well as the applicable limits listed in the MOE publication, "*Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality*", dated February 2008 (List of MOE POI Limits).

The Facility is expected to emit volatile organic compounds and products of combustion. Some of the sources and contaminants were considered negligible in accordance with s.8 of O. Reg. 419/05.

The maximum Point of Impingement (POI) concentrations were calculated based on the operating conditions where all significant sources are operating simultaneously at their individual maximum rates of production. The maximum emission rates for each significant contaminant emitted from the significant sources were calculated in accordance with s.11 of O. Reg. 419/05 and the data quality assessment follows the process outlined in the requirements of the ESDM Procedure Document.

A POI concentration for each significant contaminant emitted from the Facility was calculated based on the calculated emission rates and the output from the approved dispersion model; the results are presented in the following Emission Summary Table in accordance with s.26 of O. Reg. 419/05.

For the contaminants with a 10-minute averaging period, compliance was conservatively assessed at the property line.

Contaminants released by the Facility that are not found on the List of MOE POI Limits are considered to be 'Contaminants with No Ministry POI Limits'. There are three 'Contaminants with No Ministry POI Limits' at the Facility. These contaminants were compared against the Jurisdictional Screening Limits (JSL) listed in the MOE document, "*Jurisdictional Screening Level (JSL) List A Screening Tool for Ontario Regulation 419: Air Pollution – Local Air Quality*" (dated February 2008). Each contaminant concentration at Point of Impingement (POI) is below the respective JSL.

Of the 13 contaminants assessed, 10 have limits in the List of MOE POI Limits; all the predicted POI concentrations are below the corresponding limits. The highest maximum POI concentration is 80% of the 10-minute limit for xylene

Emission Summary Table

Contaminant Name	Contaminant CAS Number	Total Facility Emission Rate g/s	Air Dispersion Model Used	Max. POI Concentration $\mu\text{g}/\text{m}^3$	Averaging Period	MOE POI Limit $\mu\text{g}/\text{m}^3$	Limiting Effect	Regulation Schedule #	Percentage of MOE POI Limit
Xylene	1330-20-7	1.96	AERMOD	2,402	10 min	3,000	Odour	G	80%
Xylene	1330-20-7	0.65	AERMOD	205	24 hr	730	Health	3	28%
Toluene	108-88-3	0.52	AERMOD	164	24 hr	2,000	Odour	G	8%
2-Ethoxyethyl acetate	111-15-9	0.12	AERMOD	146	10 min	300	Odour	G	49%
2-Ethoxyethyl acetate	111-15-9	0.04	AERMOD	14	24 hr	540	Health	G	3%
Methyl isobutyl ketone	108-10-1	0.22	AERMOD	68	24 hr	1,200	Odour	G	6%
Methyl alcohol	67-56-1	0.870	AERMOD	273	24 hr	4,000	Health	3	7%
Glycol Ether EE	110-80-5	0.12	AERMOD	146	10 min	1,100	Odour	G	13%
Glycol Ether EE	110-80-5	0.04	AERMOD	14	24 hr	380	Health	G	4%
Methyl ethyl ketone	78-93-3	1.09	AERMOD	341	24 hr	1,000	Health	3	34%
NOx	10102-44-0	0.28	AERMOD	216	1 hr	400	Health	3	54%
NOx	10102-44-0	0.28	AERMOD	99	24 hr	200	Health	3	50%
N-butyl alcohol	71-36-3	0.12	AERMOD	146	10 min	2,100	Odour	G	7%
N-butyl alcohol	71-36-3	0.04	AERMOD	14	24 hr	920	Health	3	1%
Methylene Chloride	75-09-2	0.19	AERMOD	83	24 hr	220	Health	3	38%
2 Methylbutyl Alcohol	137-32-6	0.02	AERMOD	6	24 hr	13	N/A	JSL	Below JSL
Amyl Alcohol	71-41-0	0.04	AERMOD	14	24 hr	120	N/A	JSL	Below JSL
ⁿ Propoxypropanol	1569-01-3	0.043	AERMOD	14	24 hr	520	N/A	JSL	Below JSL

Notes on Column labelled Regulation Schedule #:

3 refers to Standards in Schedule 3 of O. Reg. 419/05.

G refers to criteria identified as POI Guideline in the document "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008.

JSL refers to Jurisdictional Screening Limit the "Jurisdictional Screening Level (JSL) List A Screening Tool for Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008.

Notes on Column labelled MOE POI Limit:

Where a currently applicable MOE POI Standard or Guideline was not available for a contaminant, future limits that are being phased in were used for screening purposes to determine whether a completed copy of the MOE document titled "Supporting Information for a Maximum Ground Level Concentration Acceptability Request Supplement to Application for Approval, EPA S.9" (PIBS 4872) needs to be submitted for the contaminant.

1.0 INTRODUCTION AND FACILITY DESCRIPTION

This section provides a description of the facility as required by sub paragraph 1 of s.26(1) of O. Reg. 419/05.

ACME operates a manufacturing facility located at 12 Capper Crescent, Othertown, Ontario (the Facility) and is located in an industrial zoned area.

The location of the Facility is presented in Figure 1 – Site Location Plan and the land use designation of the site and surrounding area is presented in Figure 2 – Land Use Zoning Designation Plan. The location of the discharges from each of the significant sources is presented in Figure 3 – Site Plan and Roof Layout; the location of each of the sources is specified with the source reference number.

1.1 Purpose and Scope of ESDM Report

This ESDM Report was prepared to support an application for a Basic Comprehensive CofA [Air and Noise] for all sources at the facility.

This Emission Summary and Dispersion Modelling (ESDM) Report was prepared in accordance with s.26 of Ontario Regulation 419/05 (O. Reg. 419/05). In addition, guidance in the Ontario Ministry of the Environment (MOE) publication “*Procedure for Preparing an Emission Summary and Dispersion Modelling Report*” dated July 2005 (ESDM Procedure Document) PIBS 3614e02 was followed as appropriate.

For ease of review and to promote clarity this ESDM Report is structured to correspond to each of the items listed in the ministry publication “*2005 Emission Summary and Dispersion Modelling Check-List*” PIBS 5357e.

1.2 Description of Processes and NAICS Code(s)

ACME produces coated metal products for use in the aviation industry. The main manufacturing process consists of coating metal components with a solvent based coating. The metal parts are fabricated offsite; the operations at the Facility are limited to the coating process, which uses state-of-the art coating technology and is therefore, very efficient.

The North American Industry Classification System (NAICS) code that best applies to the Facility is 336411 – Aerospace Product and Parts Manufacturing, which is part of NAICS code 336 – Transportation Equipment Manufacturing listed in Schedule 5 of O.Reg. 419/05.

The Facility was constructed after November 30, 2005 it is subject to s.20 of O. Reg. 419/05, and the Facility's compliance is assessed using the Standards listed in Schedule 3 of O. Reg. 419/05 and the applicable limits listed in the Ministry document titled "*Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality*", dated February 2008.

1.3 Description of Products and Raw Material

There are two production areas at the Facility: the main production booth and a smaller custom production area. There is also a research and development operation that has a small coating operation.

The coating is a resin based mixture containing volatile organic compounds. The coating is applied to the parts using a state-of-the-art dip tank technique, which provides an ultra thin coating. Prior to being dipped the metal parts are wiped with a solvent mixture in a preparation booth.

The coating is received and loaded into a storage tank. When a new batch is needed, the coating is pumped in a closed-looped system to a mixing tank where very small amounts of additives are blended into the batch. The batch is then pumped to a tank, which is indirectly heated by a thermal oil circuit from a natural gas fired boiler. Before the batch is heated the tank is sealed and nitrogen gas is pumped in to a pressure of 1.5 atmospheres. The tank is then heated until the mixture reaches a temperature of 130 degrees Celsius, at which time, the tank is vented and the mixture is pumped to the coating tank.

There are also some supporting operations at the Facility, namely: natural gas fired heating and ventilating equipment, a natural gas fired boiler to heat the thermal oil and a maintenance area with some minor welding.

Product usages and process information are provided in greater detail in Appendix A – Supporting Calculations. Refer to Table 1 – Sources and Contaminants Identification Table, which tabulates the individual sources of emissions at the Facility.

1.4 Process Flow Diagram

Refer to Figure 4 – Process Flow Diagram for a graphical representation of the manufacturing operation processes at the Facility.

1.5 Operating Schedule

The Facility operates from 8:30AM to 5:30PM, seven days per week, up to 50 weeks per year. The coating process operates for a maximum of 8 hours during the Facility operating hours.

1.6 Facility Production Limit

Since operations began in 2006, the Facility increased production through process efficiency improvements until the current levels of production have been reached. The following summarizes the yearly production of coated metal parts.

Year	Production (number of coated parts)
2006	140,000
2007	221,000
2008 (ytd)	237,000

Based on current market demands and the current installed capacity at the Facility, the projected production rate over the next 5 years will be remain at a maximum of 300,000 coated metal parts produced per year.

2.0 INITIAL IDENTIFICATION OF SOURCES AND CONTAMINANTS

This section provides an initial identification of all of the sources and contaminants emitted at the Facility, as required by sub paragraphs 2 to 4 of s.26(1) of O. Reg. 419/05.

There may be general ventilation from the Facility that only discharges uncontaminated air from the workspaces or air from the workspace that may include contaminants that come from commercial office supplies, building maintenance products or supplies and activities; these types of ventilation sources are considered to be negligible and were not identified as sources at the Facility.

It should be noted that general ventilation located in the process area that does not vent process emissions is also considered to be negligible.

2.1 Sources and Contaminants Identification Table

Table 1 – Sources and Contaminants Identification Table tabulates all the emission sources at the Facility; for example, the Main Production Line is identified as a source.

The expected contaminants emitted from each source are also identified in Table 1; for example, the expected contaminants emitted from the Main Production Line are identified as a significant source of volatile organic compounds. Each of the identified sources has been assigned a source reference number; for example, the Main Production line has been designated S-1.

The location of the discharges from each significant source is presented in Figure 3 – Site Plan and Roof Layout; the location of each of the sources is specified with the source reference number.

3.0 ASSESSMENT OF THE SIGNIFICANCE OF CONTAMINANTS AND SOURCES

This section provides information and rationale for the identification of negligible contaminants and sources. This allows facilities with a large quantity of sources and contaminants to focus on a more detailed analysis of emissions and POI concentrations of the significant contaminants and sources.

As required by paragraph 2 of subsection 26(1) of O.Reg. 419/05, Table 1 – Sources and Contaminants Identification Table, contains a list of all contaminants that are discharged from the property and for each of those contaminants, a list of all the sources of contaminant that are located on the property.

In accordance with section 8 of O.Reg. 419/05, some of the contaminants and sources listed in Table 1 have been identified as negligible, and have therefore been excluded from further analysis and from the air dispersion modelling.

3.1 Identification of Significant Contaminants and Sources

Of all the twelve sources listed in Table 1 – Sources and Contaminants Identification Table, eight sources have been identified as insignificant. As required by paragraph 3 of subsection 26(1) of O.Reg. 419/05, an explanation of how it was determined that each source of contaminant discharges a negligible amount of the contaminant is also provided in the table.

For example, the R&D Area (S-3) has been identified as an insignificant source, as all the contaminants discharged from this source have been identified as being discharged in negligible amounts.

The remaining four sources are significant. For example, the Main Production Line (S-1) is considered a significant source. These sources will be included in the dispersion modelling for the site.

Some contaminants from the sources that are considered significant have been identified as negligible. Each negligible contaminant from a significant source is identified in Table 1; for example, the expected contaminants emitted from the Preparation Booth (S-7) are identified as acetone and methylene chloride. The emission of acetone is identified as negligible in Table 1. The remaining contaminant methylene chloride emitted from S-7 is considered significant.

3.2 Rationale for Assessment

For each source in Table 1 that has been identified as being negligible there is an accompanying documented rationale; for example, the rationale for S-3 is a semi-qualitative argument. The technical information required to substantiate the argument that each of the identified sources is negligible is presented in Appendix B of this ESDM Report – Supporting Information for Assessment of Negligibility.

For each contaminant in Table 1 that has been identified as being negligible there is an accompanying rationale; for example, the rationale for the conclusion that the emission of acetone from source S-7 is negligible is listed as threshold calculator. The technical information required to substantiate this conclusion is presented in Appendix B of this ESDM Report – Supporting Information for Assessment of Negligibility.

4.0 OPERATING CONDITIONS, EMISSION ESTIMATING AND DATA QUALITY

This section provides a description of the operating conditions used in the calculation of the emission estimates and an assessment of the data quality of the emission estimates for each significant contaminant from the Facility, as required by sub paragraphs 6 and 7 of s.26(1) of O. Reg. 419/05.

4.1 Description of Operating Conditions

Paragraph 1 of subsection 10(1) of O.Reg.419/05 states that the approved dispersion model must be used with operating conditions that result in the maximum POI concentration for each significant contaminant, according to the averaging period for the relevant MOE POI Limit corresponding to that contaminant. The operating condition that corresponds to the maximum POI concentration may occur when the Facility is at the maximum production level or running at a lower production level or the process is in transition.

In preparing this ESDM Report, all operating scenarios for all the significant sources at the Facility were assessed for the contaminants that are relevant to this application for a certificate of approval under section 9 of the EPA. For each significant contaminant, and according to the averaging period for the relevant MOE POI Limit corresponding to that contaminant, the operating scenario used for this Facility that results in the maximum POI concentration is the scenario where all significant sources are operating simultaneously at their individual maximum rates of production.

In accordance with paragraph 6 of subsection 26(1) of O.Reg.419/05, Appendix A of this ESDM Report includes a description of the operating condition for each contaminant that is emitted in significant amounts, including a description of the operating conditions of the significant sources that result in the maximum POI concentration for the contaminant, ensuring that the operating conditions correspond to the averaging period of the MOE POI Limit(s).

4.2 Explanation of the Methods Used to Calculate Emission Rates

The maximum one hour emission rates for each significant contaminant emitted from the significant sources were calculated in accordance with requirements of the ESDM Procedure Document.

The emission rate for each significant contaminant emitted from a significant source was estimated and the methodology for the calculation is documented in Table 2 – Source Summary Table. For example, the emission of toluene from the Main Production Line (S-1) was calculated using a mass balance (MB) technique.

4.3 Sample Calculations

The technical rationale, including sample calculations, required to substantiate the emission rates presented in Table 2 – Source Summary Table is documented in Appendix A – Supporting Calculations.

4.4 Assessment of Data Quality

This section provides a description of the assessment of the data quality of the emission estimates for each significant contaminant from the Facility, as required by sub paragraph 7iii of s.26 (1) of O. Reg. 419/05.

The assessment of the data quality of the emission rate estimates for each significant contaminant emitted from the significant sources was performed in accordance with the requirements of sub paragraph 7iii of s 26(1) of the O. Reg. 419/05. For example, the mass balance (MB) technique used to calculate the emissions from S-1 is based on the assumption that 100% of the volatile components are emitted at the maximum rate that they are used. Therefore, the emission rate estimate is not likely to be an underestimate of the actual emission rate and use of these emission rates will result in calculated concentration at Point of Impingement (POI) greater than the actual concentrations. This source was documented as having a data quality of “Above-Average”, which is generally acceptable according to requirements of the ESDM Procedure Document

For each contaminant the emission rate was estimated and the data quality of the estimate is documented in Table 2 – Source Summary Table. The assessment of data quality for each source listed in Table 2 is documented in Appendix A – Supporting Calculations.

All the emission rates listed in Table 2 are documented as having “Above Average” data quality and correspond to the operating scenario where all significant sources are operating simultaneously at their individual maximum rates of production. Therefore, the emission rate estimates listed in Table 2 are not likely to be an underestimate of the actual emission rates and use of these emission rates will result in a calculated concentration at POI greater than the actual concentrations.

5.0 SOURCE SUMMARY TABLE AND SITE PLAN

This section provides the table required by sub paragraph 8 and the site plan required by sub paragraph 9 of s.26(1) O. Reg. 419/05.

5.1 Source Summary Table

The emission estimates for each source of significant contaminants are documented in Table 2 – Source Summary Table in accordance with requirements of sub paragraph 8 of s.26(1) of O. Reg. 419/05.

5.2 Site Plan

The locations of the emission sources listed in Table 2 – Source Summary Table are presented in Figure 3 – Site Plan and Roof Layout; the location of each of the sources is specified with the source reference number. The location of the property-line is indicated on Figure 3. The location of each source is provided in Table 2 – Source Summary Table.

6.0 DISPERSION MODELLING

This section provides a description of how the dispersion modelling was completed for the Facility to predict the maximum POI concentrations, as required by sub paragraphs 10 to 13 of s.26(1) of O. Reg. 419/05.

The Facility is subject to s.20 of O. Reg. 419/05 and as such, the assessment of compliance with Schedule 3 standards was carried out with the aid of the U.S. EPA AERMOD atmospheric dispersion model.

Dispersion modelling was completed in accordance with the MOE's "*Air Dispersion Modelling Guideline for Ontario, Version 1.0*" dated July 2005 (ADMGO). A general description of the input data used in the dispersion model is provided below and summarized in Table 3.

The AERMOD modelling system has been identified by the MOE as one of the approved dispersion models under O. Reg. 419/05, and currently includes the Plume Rise Model Enhancements (PRIME) algorithms for assessing the effects of buildings on air dispersion.

The use of a more refined model, such as AERMOD, is necessary when assessing air quality against Schedule 3 Standards. It is also applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources).

The AERMOD modelling system is made up of the AERMOD dispersion model, the AERMET meteorological pre-processor and the AERMAP terrain pre-processor. The following approved dispersion model and pre-processors were used in the assessment:

- AERMOD dispersion model (v. 07026);
- AERMAP surface pre-processor (v. 06341); and
- BPIP building downwash pre-processor (v. 04274).

AERMET was not used in this assessment, as a pre-processed MOE meteorological dataset was used.

6.1 Dispersion Modelling Input Summary Table

A description of the way in which the approved dispersion model was performed is included as Table 3 – Dispersion Modelling Input Summary Table. This table meets both the requirements of s.26(1)11 and sections 8-17 of O. Reg. 419/05 and follows the format provided in the ESDM Procedure Document.

As per Section 4.5 of the ADMGO, the significant sources at the Facility were classified as either point, or volume sources. The source data required for each source was determined according to the procedures provided in ADMGO and presented in the Dispersion Modelling Plan (Figure 5). Furthermore, the dispersion modelling input parameters are summarized in Table 4 – Dispersion Modelling Source Summary Table. Although not required by s.26 of O. Reg. 419/05, this table simplifies the data presentation.

All sources, with the exception of the HVAC equipment were modelled as point sources. HVAC equipment emissions were modelled as a single volume source.

6.2 Coordinate System

The Universal Transverse Mercator (UTM) coordinate system, as per *Section 5.2.2* of the ADMGO, was used to specify model object sources, buildings and receptors. All coordinates were defined in the North American Datum of 1983 (NAD83).

All source, building, and property line coordinates are provided in Figure 5.

6.3 Meteorology and Land Use Data

Sub paragraph 10 of s.26(1) of O. Reg. 419/05 requires a description of the local land use conditions if meteorological data, as described in paragraph 2 of s.13(l) of O. Reg. 419/05, was used. In this assessment, the AERMOD model was run using a MOE pre-processed 5-year dispersion meteorological dataset (i.e., surface and profile files), last updated in 2007, in accordance with paragraph 1 of s.13(1) of O. Reg. 419/05. As the Facility is located in the geographical coverage of MOE Othertown District Office, which is located in Central Ontario, the meteorological dataset for the Central Region is used. Furthermore, the land use surrounding the Facility is characterized as urban, as illustrated in Figure 2 (Land Use Zoning Designation plan) and Figure 6 (3-Kilometre Satellite Image). As a result, MOE's "Urban" meteorological dataset is used.

6.4 Terrain

Terrain data used in this assessment was obtained from MOE (7.5 minute format) and is illustrated in Figure 8. DEM files used in this assessment are;

- 0865_3.DEM
- 0865_4.DEM
- 0871_3.DEM
- 0871_4.DEM
- 0872_3.DEM
- 0872_4.DEM

6.5 Receptors

Receptors were chosen based on recommendations provided in Section 7.1 of the ADMGO, which is in accordance with s.14 of O. Reg. 419/05. Specifically, a nested receptor grid, centered around the boiler stacks, were placed as follows:

- (a) 20 m spacing, within an area of 200 m by 200 m
- (b) 50 m spacing, within an area surrounding the area described in (a) with a boundary at 300 m by 300 m outside the boundary of the area described in (a)
- (c) 100 m spacing, within an area surrounding the area described in (b) with a boundary at 800 m by 800 m outside the boundary of the area described in (a)
- (d) 200 m spacing, within an area surrounding the area described in (c) with a boundary at 1,800 m by 1,800 m outside the boundary of the area described in (a)
- (e) 500 m spacing, within an area surrounding the area described in (d) with a boundary at 4,800 m by 4,800 m outside the boundary of the area described in (a)

In addition to using the nested receptor grid, receptors were also placed every 10 metres along the property line. The area of modeling coverage is illustrated on Figure 8 - Dispersion Modelling Receptors.

There is no child care facility, health care facility, senior's residence, long-term care facility or an educational facility located at the Facility. As such, same structure contamination was not considered. For information purposes the nearest residence is identified on Figure 1 – Site Location Plan, located 166m from the facility's property line.

6.6 Building Downwash

Building wake effects were considered in this assessment using the U.S. EPA's Building Profile Input Program (BPIP-PRIME), another pre-processor to AERMOD. The inputs into this pre-processor include the coordinates and heights of the buildings and stacks. The output data from BPIP is used in the AERMOD building wake effect calculations.

The PRIME plume rise algorithms include vertical wind shear calculations (important for buoyant releases from short stacks [i.e., stacks at release heights within the recirculation zones of buildings]). The PRIME algorithm also allows for the wind speed deficit induced by the building to change with respect to the distance from the building. These factors improve the accuracy of predicted concentrations within building wake zones that form in the lee of buildings. Refer to Figure 9 which demonstrates the BPIP inputs.

The BPIP input file is provided in Appendix D (Dispersion Modelling Data).

6.7 Deposition

AERMOD has the capability to account for wet and dry deposition of substances that would reduce ground level concentrations at POIs. However, the deposition algorithm has not been implemented as only regulatory defaults have been used.

6.8 Averaging Time and Conversions

The shortest time scale that AERMOD predicts is a 1-hour average value. Schedule 3 standards of O. Reg. 419/05 apply to this Facility; many of these standards are based on 1-hour and 24-hour averaging times, which are averaging times that are easily provided by AERMOD. In cases where a standard has an averaging period less than 1-hour (e.g., 10-minute), a conversion to the appropriate averaging period was completed using the MOE recommended conversion Factors, as documented in the ADMGO.

As stated in the document *“Summary of O.Reg 419/05 Standards and Point of Impingement Guidelines and Ambient Air Quality Criteria (AAQCs)”* dated February 2008, 10-minute standards/guidelines are not to be used in modelling assessments until a technical bulletin on *“Methodology for Modelling Assessments of Contaminants with 10 Minute Average Standards and Guidelines”*, has been published by the MOE.

All contaminants modelled have 24-hour averaging time emissions, with the exception of nitrogen oxides, which also has a 1-hour averaging period. The emission rate of nitrogen oxides is the same during the 1-hour averaging time as the 24-hour averaging time; therefore, it was not necessary to perform separate model runs for 1-hour and 24-hour averaging times.

6.9 Dispersion Modelling Options

The options used in the AERMOD dispersion model are summarized in the table below.

Options used in AERMOD

Modelling Parameter	Description	Used in the Assessment?
DFAULT	Specifies that regulatory default options will be used	Yes
CONC	Specifies that concentration values will be calculated	Yes
DDPLETE	Specifies that dry deposition will be calculated	No
WDPLETE	Specifies that wet deposition will be calculated	No
FLAT	Specifies that the non-default option of assuming flat terrain will be used	No, the model will use elevated terrain data files as detailed in the AERMAP output.
NOSTD	Specifies that the non-default option of no stack-tip downwash will be used	No
AVERTIME	Time averaging periods calculated	1-hr, 24-hr
URBANOPT	Allows the model to incorporate the effects of increased surface heating from an urban area on pollutant dispersion under stable atmospheric conditions	No
URBANROUGHNESS	Specifies the urban roughness length (m)	No
FLAGPOLE	Specifies that receptor heights above local ground level are allowed on the receptors	No

6.10 Dispersion Modelling Input and Output Files

The dispersion model input data are summarized in the Dispersion Modelling Input Summary Table (Table 3). An **example** output file from AERMOD is provided in Appendix C.

Electronic copies of all input and output files are also provided in Appendix C on compact disc (CD).

7.0 EMISSION SUMMARY TABLE AND CONCLUSIONS

This section provides the table required by sub paragraph 14 of s.26(1) of O. Reg. 419/05 and provides an interpretation of the results as required by the ESDM Procedure Document.

7.1 Emission Summary Table

A POI concentration for each significant contaminant emitted from the Facility was calculated based on the emission rates listed in Table 2 – Source Summary Table and the output from the approved dispersion model presented in Appendix C. The results are presented in Table 5 – Emission Summary Table. This table follows the format provided in the ESDM Procedure Document.

The POI concentrations listed in Table 5 – Emission Summary Table were compared against criteria listed in the publication “Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality” dated February 2008, as amended [List of Ministry POI Limits].

Given that the POI concentrations for all contaminants are well below their applicable Ministry limits, meteorological anomalies (as described in the ADMGO) were not considered.

For the contaminants with a 10-minute averaging period, compliance was conservatively assessed at the property line.

Of the 13 contaminants assessed, 10 have limits in the List of MOE POI Limits; all the predicted POI concentrations are below the corresponding limits. The highest maximum POI concentration is 80% of the 10-minute limit for xylene

7.2 Assessment of Contaminants with no MOE POI Limits

Sub paragraph 14 subsection viii of s.26(1) O. Reg. 419/05 requires an indication of the likelihood, nature and location of any adverse effect if the contaminant is not listed in any of Schedules 1, 2 and 3.

Contaminants released by the Facility that are not found on the List of MOE POI Limits are considered to be ‘Contaminants with No Ministry POI Limits’. There are three ‘Contaminants with No Ministry POI Limits’ at the Facility. These contaminants were compared against the Jurisdictional Screening Limits (JSL) listed in the MOE document, “*Jurisdictional Screening Level (JSL) List A Screening Tool for Ontario Regulation 419: Air Pollution – Local Air Quality*” (dated February 2008). Each contaminant concentration at Point of Impingement (POI) is below the respective JSL.

7.3 Conclusions

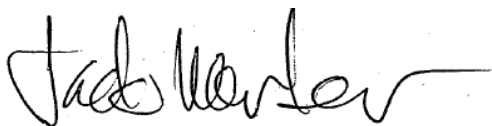
This ESDM Report was prepared in accordance with s.26 of O. Reg. 419/05. In addition, guidance in the ESDM Procedure Document was followed, as applicable.

The Facility is subject to s.20 of O. Reg. 419/05, and the Facility's compliance was assessed using Schedule 3 of O. Reg. 419/05. The assessment of compliance was completed using the U.S. EPA AERMOD atmospheric dispersion model.

A POI concentration for each significant contaminant emitted from the Facility was determined using the conservative emission rates and an approved atmospheric dispersion model; the results are presented in Table 5 – Emission Summary Table. The POI concentrations listed in Table 5 were compared against the list of MOE POI limits. The predicted POI concentrations for contaminants listed in the Emission Summary Table are below Reg. 419/05 corresponding limits or respective JSL value. The highest maximum POI concentration is 80% of the 10-minute limit for xylene

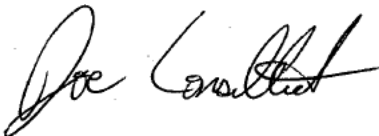
This ESDM Report demonstrates that the Facility can operate in compliance with s.20 of O. Reg. 419/05. P.E.S. Stacks recommends that a Basic Comprehensive CofA (Air and Noise) be issued for the Facility.

Prepared by:



Jack Worker
P.E.S Stacks Inc.

Reviewed by:



Joe Consultant
P.E.S Stacks Inc.

Table 1
Sources and Contaminants Identification Table
Acme Othertown Plant

Source Information			Expected Contaminants	Significant (Yes or No?)	Rationale
Source ID	Source Description	Location			
S-1	Main Production Line	Source A	Volatile Organic Compounds	Yes	
			Ethanol, Isopropyl alcohol	No	Threshold Calculator (See Appendix B)
S-2	Custom Production Area	Source A	Volatile Organic Compounds	Yes	
			Ethanol, Isopropyl alcohol	No	Threshold Calculator (See Appendix B)
S-3	R&D Area	Source A	Volatile Organic Compounds	No	Sources that are Insignificant Relative to Total Emissions This line uses the same type of material as the main production line but at a much lower rate of 1kg/hour compared to 212 kg/hour (See Appendix B)
S-4	Repair Booth	Source A	Volatile Organic Compounds	No	Sources that are Insignificant Relative to Total Emissions This line uses the same type of material as the main production line but at a much lower rate of 2.1kg/hour compared to 212 kg/hour (See Appendix B)
S-5	Maintenance Shop	Source A	Welding Fumes	No	Listed in Table B3 of the ESDM Procedure Document
S-6	Nitrogen Blanket Tank	Source A	Nitrogen	No	Listed in Table B3 of the ESDM Procedure Document
S-7	Preparation Booth	Source A	Acetone	No	Threshold Calculator (See Appendix B)
			Methylene chloride	Yes	
S-8	Coating Storage Tanks	Source A	Volatile Organic Compounds	No	Sources that are Insignificant Relative to Total Emissions (See Appendix B) These tanks store the material used in the main production line. The losses while filling will be much lower than the emissions from the main production line. (See Appendix B)
S-9	Coating Mixing Tank	Source A	Volatile Organic Compounds	No	Sources that are Insignificant Relative to Total Emissions This tank is used to mix up the material before use, the losses while filling will be much lower than the emissions from the main production line (See Appendix B)
S-10	Natural Gas Combustion and Heating Equipment	Source A S-10 (H-17)	Products of combustion	Yes	Only NOx Emissions (See Appendix B)
S-11	Roads, Parking Lot		Dust	No	Not listed in Table 7-2 or 7-3 of Section 7.4 of the ESDM Procedure Document (See Appendix B)
S-12	General Ventilation	Process Area	None	No	Process emissions are not emitted through general ventilation and as such, have not been presented on Figure 4

Table 2
Sources Summary Table
Acme Othertown Plant

Source Identifier	Source Description	Source Parameters						Emission Data						
		Stack Volumetric Flow Rate [Am³/s]	Stack Exit Gas Temperature [°C]	Stack Inner Diameter [m]	Stack Height Above Grade [m]	Stack Height Above Roof [m]	Source Coordinates (x,y) [m]	Contaminant	CAS No.	Maximum Emission Rate [g/s]	Averaging Period [hours]	Emission Estimating Technique	Emissions Data Quality	Percentage of Overall Emissions [%]
S-1	Main Production Line	5.30	35	0.6	11.2	3.0	595585.32, 4841606.88	Toluene	108-88-3	4.74E-01	24	MB	Above-Average	91%
								Xylene	1330-20-7	5.93E-01	24, 10 min	MB	Above-Average	91%
								Methyl isobutyl ketone	108-10-1	1.98E-01	24	MB	Above-Average	91%
								Methyl alcohol	67-56-1	7.91E-01	24	MB	Above-Average	91%
								2-Ethoxyethyl acetate	111-15-9	3.95E-02	24, 10 min	MB	Above-Average	91%
								Glycol Ether EE	110-80-5	3.95E-02	24, 10 min	MB	Above-Average	91%
								Methyl ethyl ketone	78-93-3	9.88E-01	24	MB	Above-Average	91%
								N-butyl alcohol	71-36-3	3.95E-02	24, 10 min	MB	Above-Average	91%
								2-Methylbutyl alcohol	137-32-6	1.98E-02	24	MB	Above-Average	91%
								Amyl Alcohol	71-41-0	3.95E-02	24	MB	Above-Average	91%
n-propoxypropanol	1569-01-3	3.95E-02	24	MB	Above-Average	91%								
S-2	Custom Production Area	3.20	30	0.45	11.2	3.0	595595.49, 4841567.01	Toluene	108-88-3	4.74E-02	24	MB	Above-Average	9%
								Xylene	1330-20-7	5.93E-02	24, 10 min	MB	Above-Average	9%
								Methyl isobutyl ketone	108-10-1	1.98E-02	24	MB	Above-Average	9%
								Methyl alcohol	67-56-1	7.91E-02	24	MB	Above-Average	9%
								2-Ethoxyethyl acetate	111-15-9	3.95E-03	24, 10 min	MB	Above-Average	9%
								Glycol Ether EE	110-80-5	3.95E-03	24, 10 min	MB	Above-Average	9%
								Methyl ethyl ketone	78-93-3	9.88E-02	24	MB	Above-Average	9%
								N-butyl alcohol	71-36-3	3.95E-03	24, 10 min	MB	Above-Average	9%
								2-Methylbutyl alcohol	137-32-6	1.98E-03	24	MB	Above-Average	9%
								Amyl Alcohol	71-41-0	3.95E-03	24	MB	Above-Average	9%
n-propoxypropanol	1569-01-3	3.95E-03	24	MB	Above-Average	9%								
S-7	Preparation Booth	3.20	30	0.45	11.2	3.0	595626.42, 4841583.69	Methylene Chloride	75-09-02	1.85E-01	24	MB	Above-Average	100%
S-10 (H1-H16)	HVAC	Various	N/A	N/A	N/A	N/A	595647.00, 4841583.00	NOx	10102-44-0	1.58E-01	1 & 24	EF	Above-Average	56%
H17	Boiler	1.24	137	0.5	15.3	7.1	595632.52, 4841616.24	NOx	10102-44-0	1.22E-01	1 & 24	EF	Above-Average	44%

Table 3
Dispersion Modelling Input Summary Table
Acme Othertown Plant

Relevant Section of the Regulation	Section Title	Description of How the Approved Dispersion Model was Used
Section 8	Negligible Sources	Sources and contaminants that were considered negligible were explicitly identified, and therefore were not modelled, in accordance with s.8 of O. Reg. 419. See Table 1 - Sources and Contaminants Identification Table and Appendix B of the ESDM Report for more information.
Section 9	Same Structure Contamination	Not applicable as Acme Inc. is the only tenant occupying the building, and does not have a child care facility, health care facility, senior's residence, long-term care facility or an educational facility located at the Facility.
Section 10	Operating Conditions	All equipment was assumed to be operating at the maximum production rates at the same time. See section 4.1 and Appendix A of the ESDM Report.
Section 11	Source of Contaminant Emission Rates	The emission rate for each significant contaminant emitted from a significant source was estimated, the methodology for the calculation is documented in Table 2 – Source Summary Table. See section 4.1 and section 4.2 and Appendix A of the ESDM Report for more information.
Section 12	Combined Effect of Assumptions for Operating Conditions and Emission Rates	The Operating Conditions were estimated in accordance with s.10(1) 1 and s.11(1) 1 of O. Reg. 419 and are therefore considered to result in the highest concentration at POI that the Facility is capable of for the contaminants emitted. See section 4.1 and section 4.2 of the ESDM Report.
Section 13	Meteorological Conditions	MOE's Regional Dataset for Central Ontario, Urban was used.
Section 14	Area of Modelling Coverage	Model coverage set to match MOE guidelines
Section 15	Stack Height for Certain New Sources of Contaminant	All stacks meet the requirements of s.15 and GEP.
Section 16	Terrain Data	MOE DEM files used: 00865_3.DEM, 00865_4.DEM, 00871_3.DEM, 00871_4.DEM, 00872_3.DEM, 00872_4.DEM
Section 17	Averaging Periods	The appropriate averaging periods (as defined by the regulatory limits outlined in Schedule 3, and in the listing of the MOE Guidelines) were modelled for each contaminant.

Table 4
Dispersion Modelling Source Summary Table
Acme Othertown Plant

Modeling ID	Source ID	Type of Source (Point / Volume / Area)	Modeling Source Data					Emission Data			
			Stack Height Above Grade [m]	Stack Gas Exit Velocity [m/s]	Stack Exit Gas Temperature [K]	Stack Inner Diameter [m]	Source Coordinates (x,y) [m]	Contaminant	CAS No.	Maximum Emission Rate [g/s]	Averaging Period [hours]
S_1	S-1	Point	11.2	18.7	308	0.6	595585.32, 4841606.88	Toluene	108-88-3	4.74E-01	24
								Xylene	1330-20-7	5.93E-01	24, 10 min
								Methyl isobutyl ketone	108-10-1	1.98E-01	24
								Methyl alcohol	67-56-1	7.91E-01	24
								2-Ethoxyethyl acetate	111-15-9	3.95E-02	24, 10 min
								Glycol Ether EE	110-80-5	3.95E-02	24, 10 min
								Methyl ethyl ketone	78-93-3	9.88E-01	24
								N-butyl alcohol	71-36-3	3.95E-02	24, 10 min
								2-Methylbutyl alcohol	137-32-6	1.98E-02	24
								Amyl Alcohol	71-41-0	3.95E-02	24
S_2	S-2	Point	11.2	20.1	303	0.45	595595.49, 4841567.01	n-propoxypropanol	1569-01-3	3.95E-02	24
								Toluene	108-88-3	4.74E-02	24
								Xylene	1330-20-7	5.93E-02	24, 10 min
								Methyl isobutyl ketone	108-10-1	1.98E-02	24
								Methyl alcohol	67-56-1	7.91E-02	24
								2-Ethoxyethyl acetate	111-15-9	3.95E-03	24, 10 min
								Glycol Ether EE	110-80-5	3.95E-03	24, 10 min
								Methyl ethyl ketone	78-93-3	9.88E-02	24
								N-butyl alcohol	71-36-3	3.95E-03	24, 10 min
								2-Methylbutyl alcohol	137-32-6	1.98E-03	24
S_7	S-7	Point	11.2	20.1	303	0.45	595626.42, 4841583.69	Amyl Alcohol	71-41-0	3.95E-03	24
H_17	H17	Point	15.3	6.3	410	0.5	595632.52, 4841616.24	Methylene Chloride	75-09-02	1.85E-01	24
			Length [m]	Width [m]	Relative Height [m]	Source Coordinates (x,y) [m]					
S_10	S-10 (H1-H16)	Volume	32.1	3.80	8.2	595647.00, 4841583.00		NOx	10102-44-0	1.58E-01	1, 24

Table 5
Emission Summary Table
Acme Othertown Plant

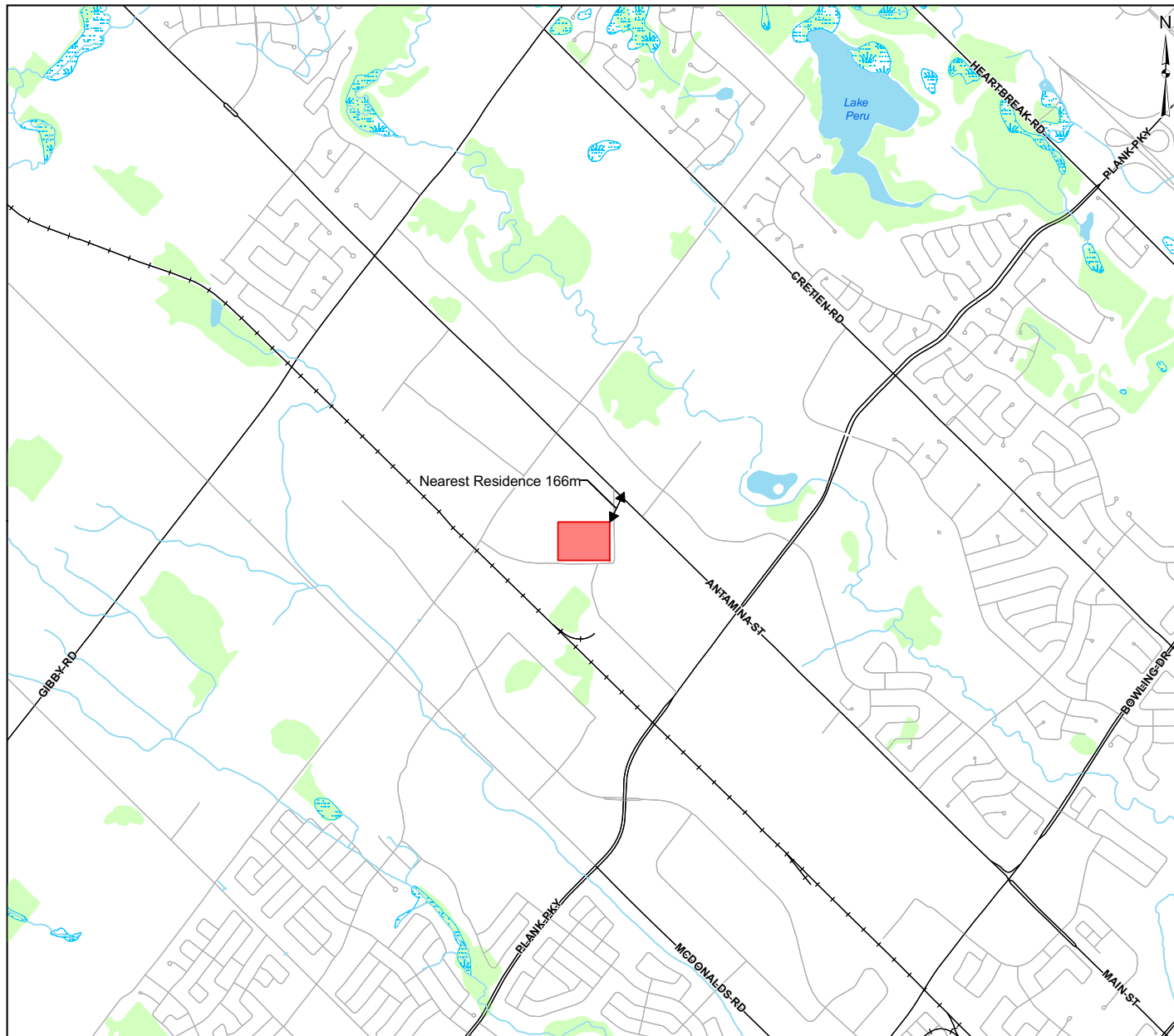
Contaminant Name	Contaminant CAS Number	Total Facility Emission Rate g/s	Air Dispersion Model Used	Max. POI Concentration $\mu\text{g}/\text{m}^3$	Averaging Period	MOE POI Limit $\mu\text{g}/\text{m}^3$	Limiting Effect	Regulation Schedule #	Percentage of MOE POI Limit
Xylene	1330-20-7	1.96	AERMOD	2,402	10 min	3,000	Odour	G	80%
Xylene	1330-20-7	0.65	AERMOD	205	24 hr	730	Health	3	28%
Toluene	108-88-3	0.52	AERMOD	164	24 hr	2,000	Odour	G	8%
2-Ethoxyethyl acetate	111-15-9	0.12	AERMOD	146	10 min	300	Odour	G	49%
2-Ethoxyethyl acetate	111-15-9	0.04	AERMOD	14	24 hr	540	Health	G	3%
Methyl isobutyl ketone	108-10-1	0.22	AERMOD	68	24 hr	1,200	Odour	G	6%
Methyl alcohol	67-56-1	0.870	AERMOD	273	24 hr	4,000	Health	3	7%
Glycol Ether EE	110-80-5	0.12	AERMOD	146	10 min	1,100	Odour	G	13%
Glycol Ether EE	110-80-5	0.04	AERMOD	14	24 hr	380	Health	G	4%
Methyl ethyl ketone	78-93-3	1.09	AERMOD	341	24 hr	1,000	Health	3	34%
NOx	10102-44-0	0.28	AERMOD	216	1 hr	400	Health	3	54%
NOx	10102-44-0	0.28	AERMOD	99	24 hr	200	Health	3	50%
N-butyl alcohol	71-36-3	0.12	AERMOD	146	10 min	2,100	Odour	G	7%
N-butyl alcohol	71-36-3	0.04	AERMOD	14	24 hr	920	Health	3	1%
Methylene Chloride	75-09-2	0.19	AERMOD	83	24 hr	220	Health	3	38%
2 Methylbutyl Alcohol	137-32-6	0.02	AERMOD	6	24 hr	13	N/A	JSL	Below JSL
Amyl Alcohol	71-41-0	0.04	AERMOD	14	24 hr	120	N/A	JSL	Below JSL
n Propoxypropanol	1569-01-3	0.043	AERMOD	14	24 hr	520	N/A	JSL	Below JSL

Notes on Column labelled Regulation Schedule #

3 refers to Standards in Schedule 3 of O. Reg. 419/05.

G refers to criteria identified as POI Guideline in the document "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008.

JSL refers to Jurisdictional Screening Limit the "Jurisdictional Screening Level (JSL) List A Screening Tool for Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008.



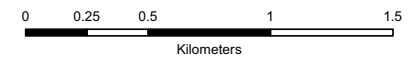
LEGEND

- Railways
- Watercourse
- Major Road
- Local Road
- Property Boundary
- Waterbody
- Wetland
- Woodlot



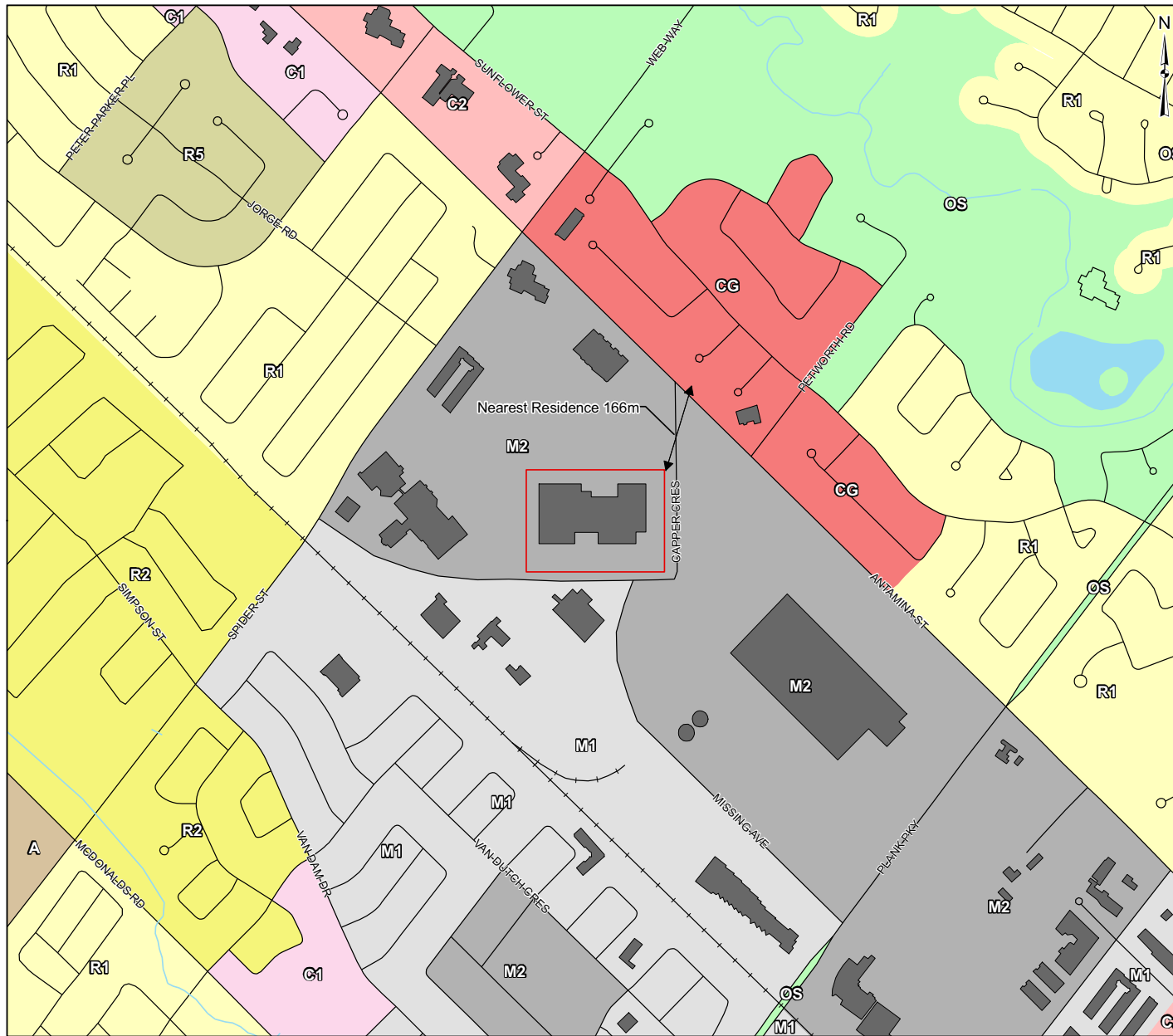
REFERENCE

Produced by P.E.S. Stacks Inc under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT			
EMISSION SUMMARY & DISPERSION MODELLING REPORT			
ACME INC., ACME OTHERTOWN PLANT			
TITLE			
SITE LOCATION PLAN			
	PROJECT NO.	08-112-0108	SCALE 1:20,000
	DESIGN	PRM 01 Jan. 2006	REV. 1.0
	GIS	XD 12 Feb. 2009	
	CHECK	AC 12 Feb. 2009	
	REVIEW	AC 12 Feb. 2009	

FIGURE: 1



LEGEND

- Railways
- Road
- Watercourse
- Waterbody
- Building Footprint
- Property Boundary

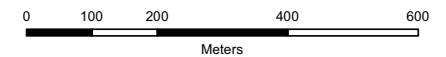
ZONING

- A Agricultural
- C1 Commercial - Low Density
- C2 Commercial - High Density
- CG Commercial - General Use
- M1 Industrial - Limited Outside Storage
- M2 Industrial - Outside Storage
- R1 Residential - Single Family
- R2 Residential - Mixed Use
- R5 Residential - High Density
- OS Open Space



REFERENCE

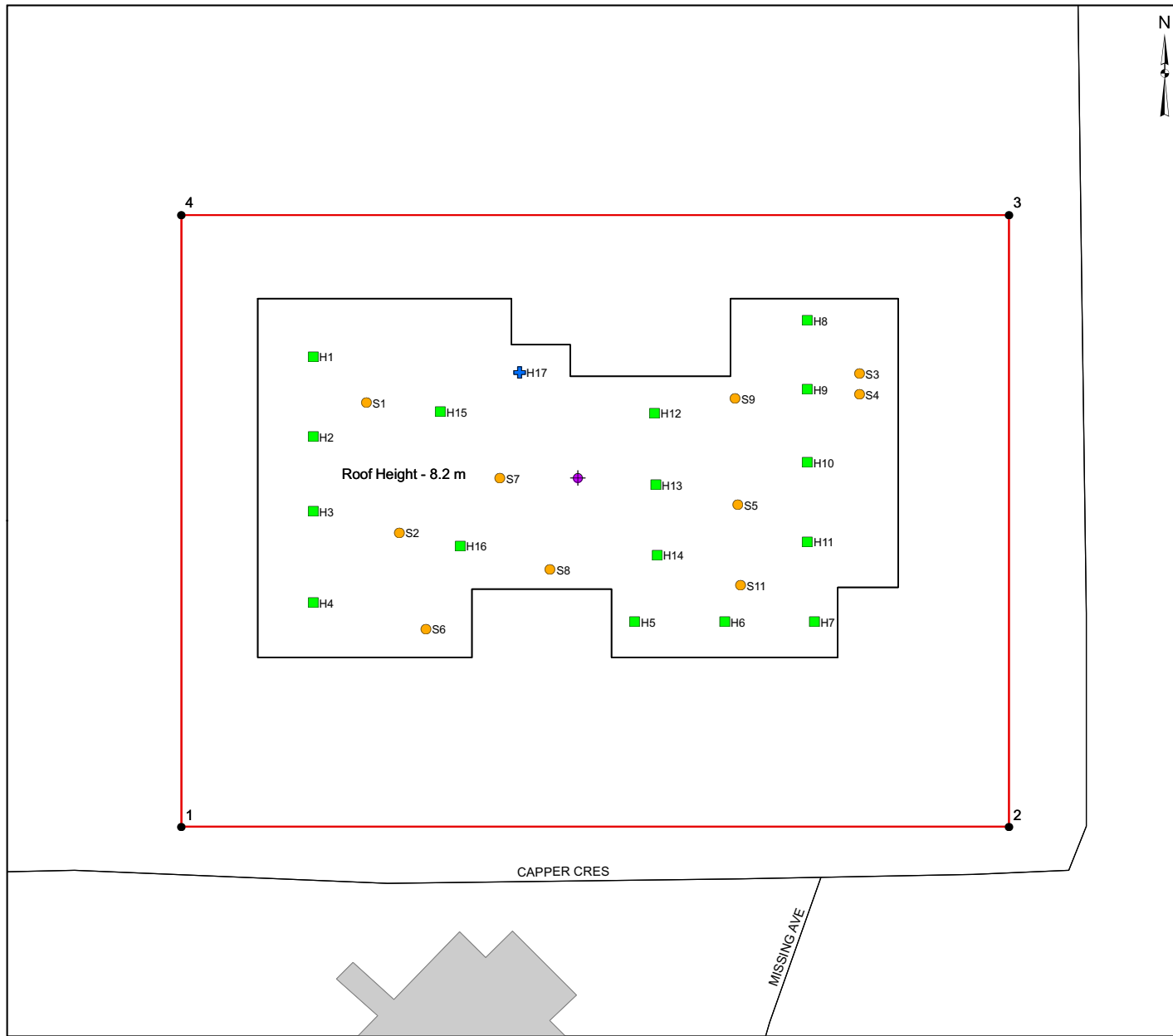
Produced by P.E.S. Stacks Inc under licence from Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT		EMISSION SUMMARY & DISPERSION MODELLING REPORT			
		ACME INC., ACME OTHERTOWN PLANT			
TITLE		LAND USE ZONING DESIGNATION PLAN			
	PROJECT NO.	08-112-0108		SCALE	1:7,500
	DESIGN	PRM	01 Jan. 2008	REV.	1.0
	GIS	XD	12 Feb. 2009		
	CHECK	AC	12 Feb. 2009		
	REVIEW	AC	12 Feb. 2009		

FIGURE: 2

G:\Projects\200808-112-0108 MOE ACME Project\GIS\MXDs\Drawings\ESDM\Feb_09_Update\Site_Plan_Roof_Layout.mxd



LEGEND

- Process Vent / Stack
- HVAC Stack
- Boiler Stack
- Virtual Source Centroid
- Road
- Watercourse
- Waterbody
- Building Footprint
- Site Location
- Property Boundary

PROPERTY LINE COORDINATES

1	595528	4841476
2	595783	4841476
3	595783	4841664
4	595528	4841664

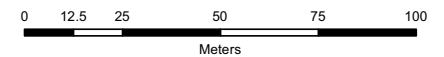
VIRTUAL SOURCE CENTROID COORDINATES

595650 4841584



REFERENCE

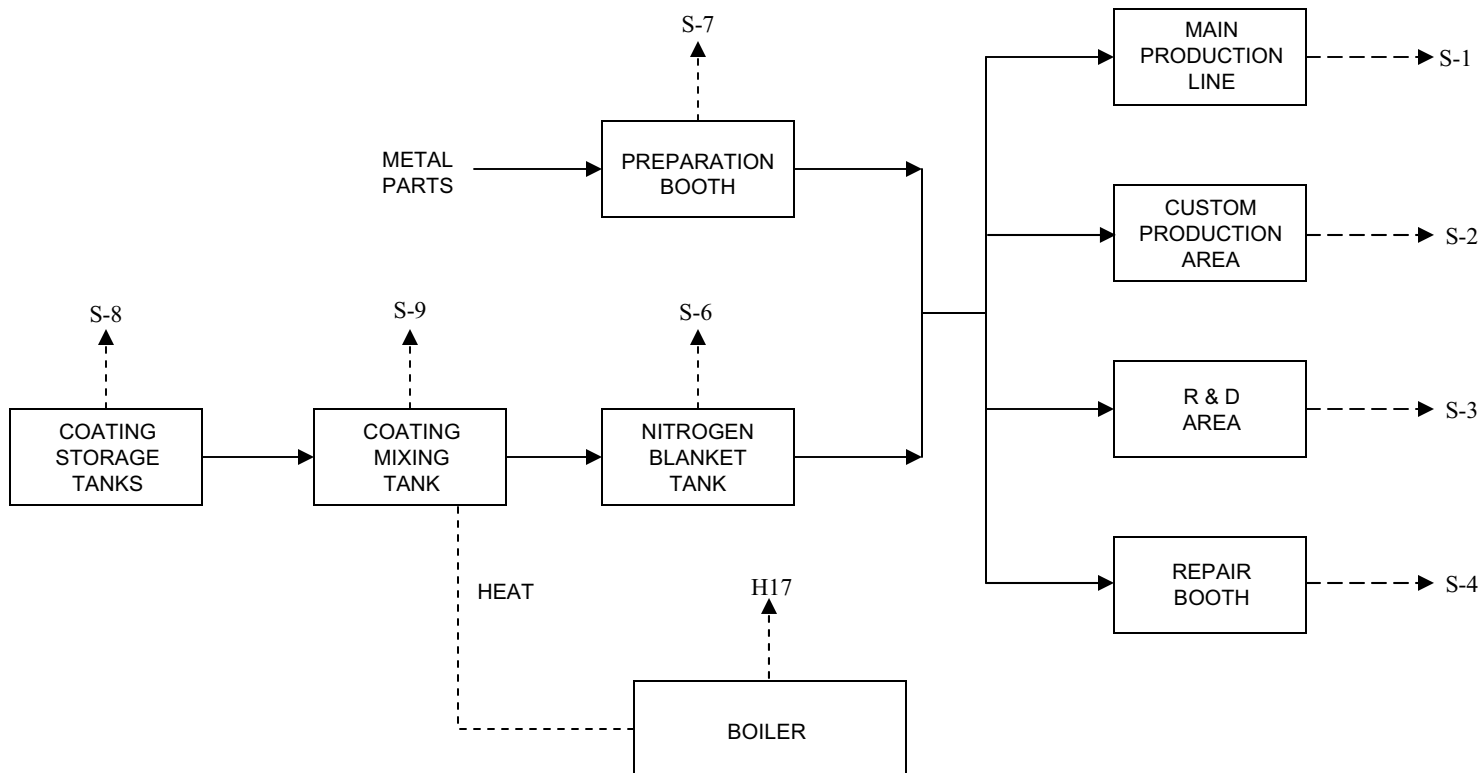
Produced by P.E.S. Stacks Inc under licence from Ontario Ministry of Natural Resources, © Queens Printer 2007



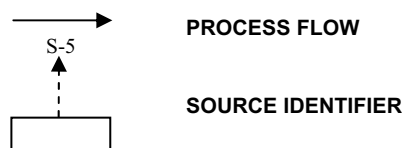
PROJECT			
EMISSION SUMMARY & DISPERSION MODELLING REPORT			
ACME INC., ACME OTHERTOWN PLANT			
TITLE			
SITE PLAN AND ROOF LAYOUT			
STACKS P.E.S. Inc.	PROJECT NO. 08-112-0108		
	SCALE 1:1,250		REV. 1.0
	DESIGN	PRM	01 Jan. 2008
	GIS	XD	10 Feb. 2009
	CHECK	AC	10 Feb. 2009
FIGURE: 3			

**PROCESS FLOW DIAGRAM
EMISSION SUMMARY AND DISPERSION MODELLING REPORT
ACME INC., ACME OTHERTOWN PLANT, ONTARIO**

FIGURE 4

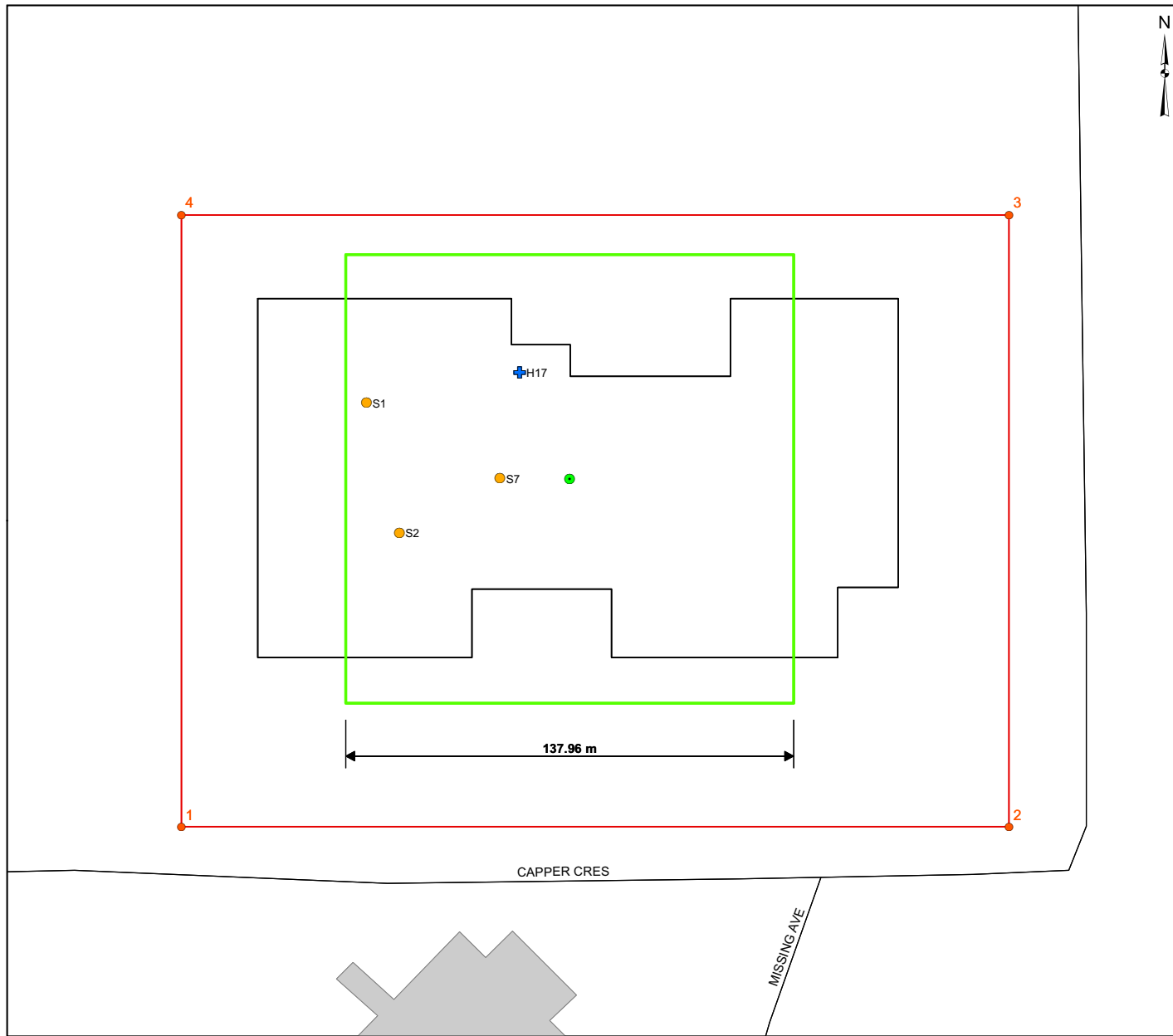


LEGEND:



NOTES:

1. This schematic represents the major processes taking place at the Facility. Simple processes such as maintenance, QA/QC procedures, backup operational procedures, and parts-washing have not been represented.



LEGEND

- Process Vent / Stack
- Boiler Stack
- Volume Source Centroid (HVAC Equipment)
- Road
- Watercourse
- Waterbody
- Equivalent Building Area for Volume Source
- Building Footprint
- Site Location
- Property Boundary

PROPERTY LINE COORDINATES

1	595528	4841476
2	595783	4841476
3	595783	4841664
4	595528	4841664

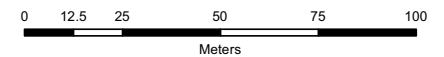
SOURCE COORDINATES

S-1 - 595585.32, 4841606.88
S-2 - 595595.49, 4841567.01
S-7 - 595626.42, 4841583.69
S-10 - 595647.85, 4841583.36
H17 - 595632.52, 4841616.24



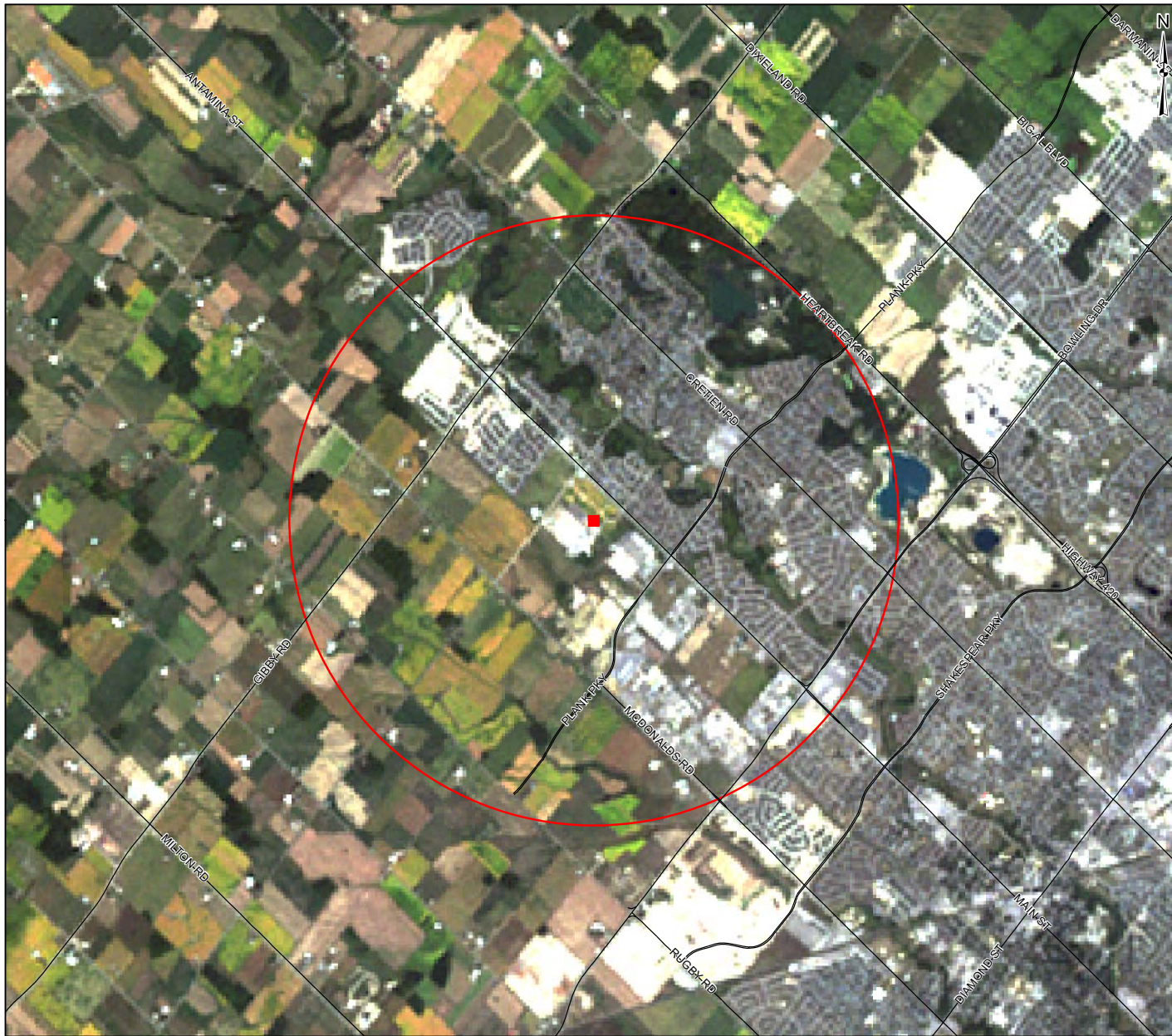
REFERENCE

Produced by P.E.S. Stacks Inc under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT			
EMISSION SUMMARY & DISPERSION MODELLING REPORT			
ACME INC., ACME OTHERTOWN PLANT			
TITLE			
DISPERSION MODELLING PLAN			
	PROJECT NO. 08-112-0108		
	SCALE	1:1,250	REV. 1.0
	DESIGN	PRM	01 Jan. 2006
	GIS	XD	10 Feb. 2009
	CHECK	AC	10 Feb. 2009
	REVIEW	AC	10 Feb. 2009

FIGURE: 5



LEGEND

- Site Location
- 3 km Buffer

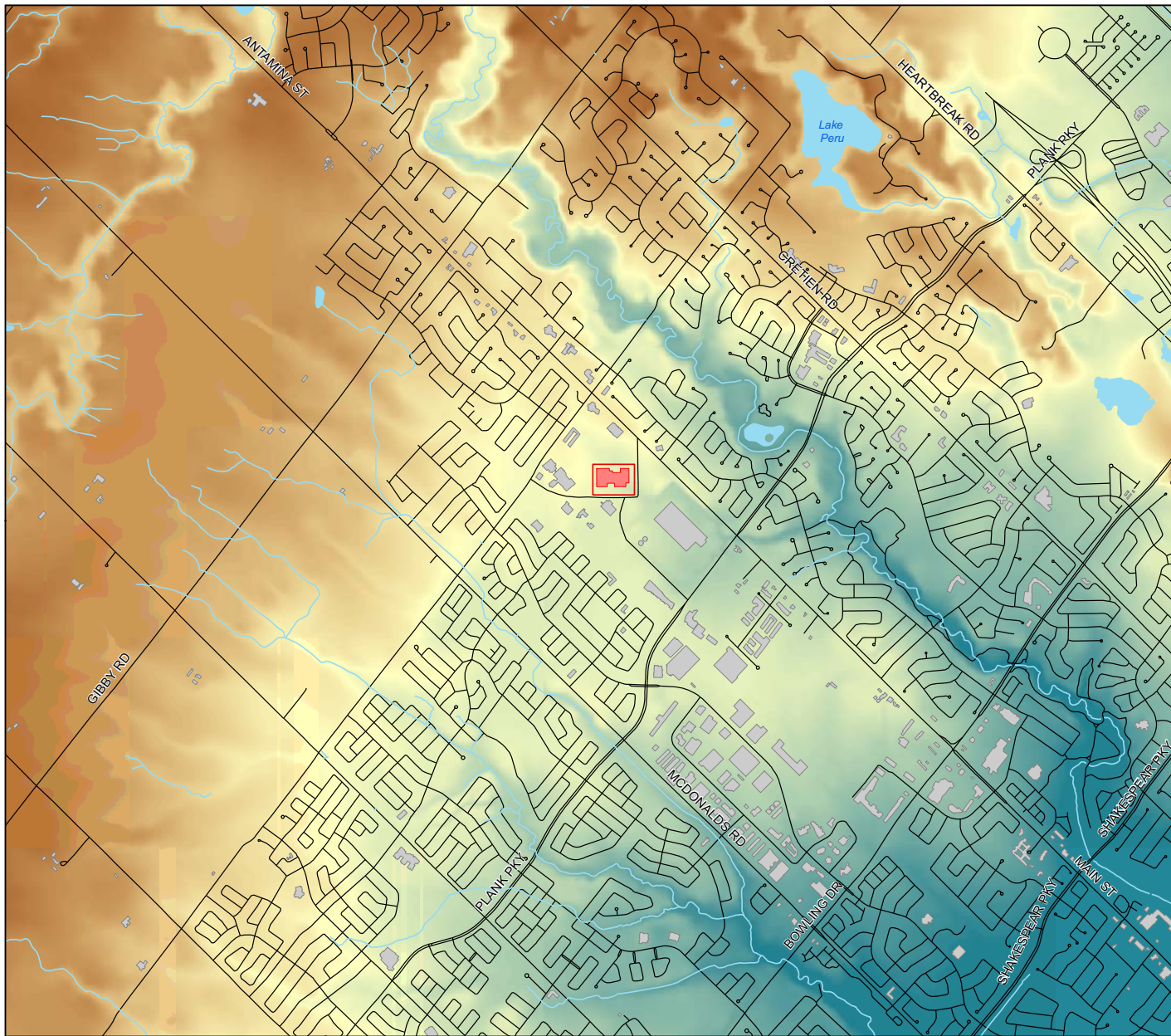


REFERENCE

Produced by P.E.S. Stacks Inc under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2007




PROJECT			
EMISSION SUMMARY & DISPERSION MODELLING REPORT			
ACME INC., ACME OTHERTOWN PLANT			
TITLE			
3 KILOMETER SATELLITE IMAGE			
	PROJECT No: 08-112-0108		SCALE 1:40,000
	DESIGN	PRM	01 Jan. 2006
	GIS	PRM	08 Aug. 2008
	CHECK	KD	08 Aug. 2008
	REVIEW	AC	08 Aug. 2008
			FIGURE 6



LEGEND

 Site Location


Elevation (masl)

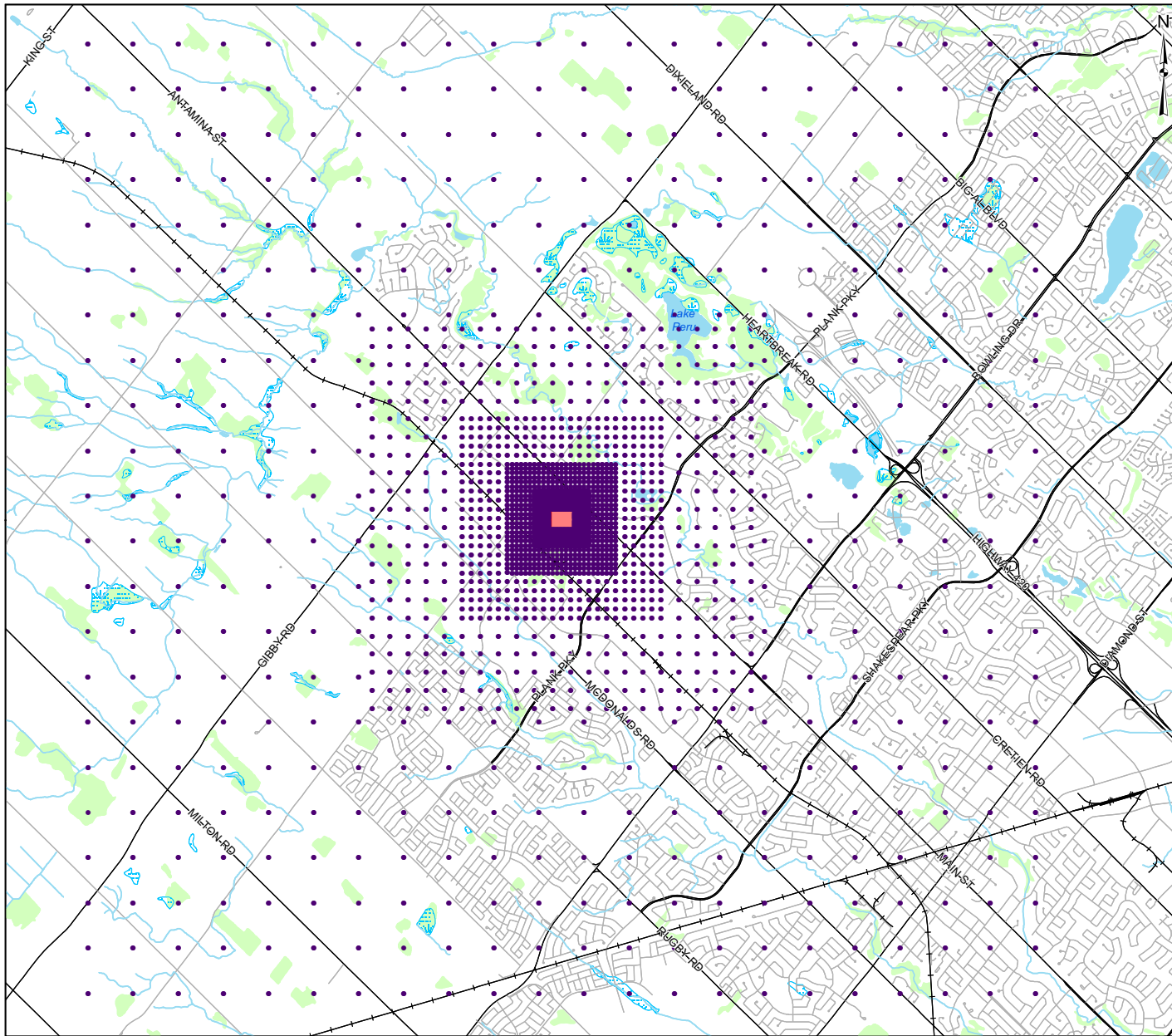
 High : 270
Low : 215



REFERENCE

Produced by P.E.S. Stacks Inc under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2007

PROJECT		EMISSION SUMMARY & DISPERSION MODELLING REPORT	
		ACME INC., ACME OTHERTOWN PLANT	
TITLE		SITE PLAN - TERRAIN ELEVATION	
	PROJECT No: 08-112-0108		SCALE
	DESIGN	PRM	01 Jan. 2008
	GIS	XD	11 Nov. 2008
	CHECK	AC	11 Nov. 2008
		REVIEW	AC
		11 Nov. 2008	
		FIGURE: 7	



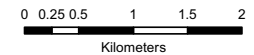
LEGEND

- Receptors
- Railways
- Watercourse
- Major Road
- Local Road
- Property Boundary
- Waterbody
- Wetland
- Woodlot

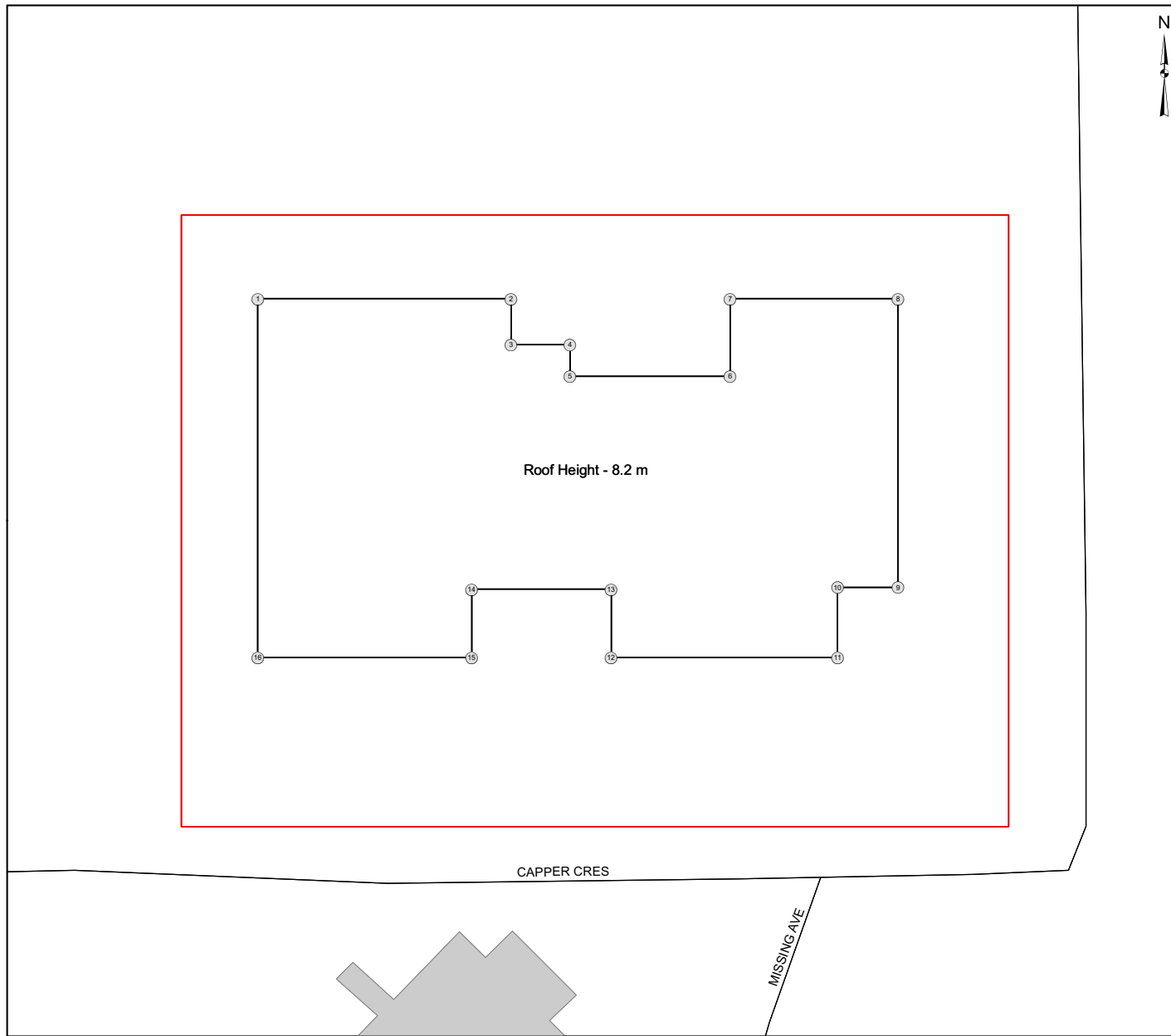


REFERENCE

Produced by P.E.S. Stacks Inc under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT			
EMISSION SUMMARY & DISPERSION MODELLING REPORT			
ACME INC., ACME OTHERTOWN PLANT			
TITLE			
DISPERSION MODELLING RECEPTORS			
	PROJECT No: 08-112-0108		SCALE 1:45,000
	DESIGN	PRM	01 Jan. 2008
	GIS	PRM	21 Aug. 2008
	CHECK	KD	21 Aug. 2008
	REVIEW	AC	21 Aug. 2008
			FIGURE: 8



LEGEND

- Road
- Watercourse
- Waterbody
- Building Footprint
- Site Location
- Property Boundary

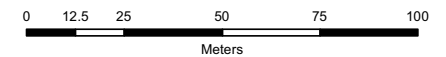
BUILDING CORNER COORDINATES



1 - 595551.78, 4841638.82	9 - 595749.05, 4841549.95
2 - 595629.91, 4841638.82	10 - 595730.49, 4841549.95
3 - 595629.91, 4841624.66	11 - 595730.49, 4841528.46
4 - 595647.97, 4841624.66	12 - 595660.67, 4841528.46
5 - 595647.97, 4841614.89	13 - 595660.67, 4841549.46
6 - 595697.29, 4841614.89	14 - 595617.70, 4841549.46
7 - 595697.29, 4841638.82	15 - 595617.70, 4841528.46
8 - 595749.05, 4841638.82	16 - 595551.78, 4841528.46



REFERENCE

Produced by P.E.S. Stacks Inc under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT				
EMISSION SUMMARY & DISPERSION MODELLING REPORT ACME INC., ACME OTHERTOWN PLANT				
TITLE				
BPBP PLAN				
	PROJECT No. 08-112-0108		SCALE 1:1,250	Ver. 1.0
	DESIGN	PRM 01 Jan. 2008		
	GIS	PRM 11 Sep. 2008		
	CHECK	KD 11 Sep. 2008		
	REVIEW	AC 11 Sep. 2008		

APPENDIX A

Supporting Calculations

Supporting Calculations

Sources S1-S2

Methodology: Mass Balance (MB)

The coating used in the process is made of a mixture of a non-volatile resin mixed with a solvent matrix. Emission rates are estimated by multiplying the usage rate on mass per time basis by the percentage by weight in the various coatings and assuming that 100% of the volatile components are emitted to the atmosphere at the same rate as they are applied and that none of the non-volatile components are emitted. A very small amount of a specialty additive is mixed with the coating prior to the dipping process.

The weight percentage in the coatings is documented in a theoretical or maximum case composite coating. The composite coating consists of the maximum weight percentage of all the compounds listed on the MSDS for all coatings used at the facility. The following table presents the maximum concentrations of the volatile components in the coatings.

Source ID	S1	S2
	Main Production Line	Custom Production Station
Usage Rate [kg/hr of coating]	42.70	4.27

Theoretical Composite Coating

Contaminant	CAS Number	Weight Percentage
Toluene	108-88-3	12.00%
Xylene	1330-20-7	15.00%
Methyl isobutyl ketone	108-10-1	5.00%
Methyl alcohol	67-56-1	20.00%
2-Ethoxyethyl acetate	111-15-9	1.00%
Glycol Ether EE	110-80-5	1.00%
Methyl ethyl ketone	78-93-3	25.00%
Isopropyl alcohol	67-63-0	1.00%
Ethanol	64-17-5	1.00%
N-butyl alcohol	71-36-3	1.00%
2 Methylbutyl Alcohol	137-32-6	0.50%
Amyl Alcohol	71-41-0	1.00%
n Propoxypropanol	1569-01-3	1.00%

Sample Calculation: Toluene 24-hour emissions from S-1

Toluene Emission Rate = Maximum 1-hour Usage Rate [kg/hr] × Weight Percentage [%] × 1000 [g/kg] × 1/3600 [hr/s] × 8 [hr/d] × 24 [d/hr]
 Toluene Emission Rate = 42.70 kg/hr × 12.00% × 1000 g/kg × 1hr/3600s × 8hr/1d × 1d/24hr
 Toluene Emission Rate = 0.474 g/s

Data Quality: Above Average

In accordance with section 8.3.2 of the ESDM Procedure Document, the emission rate estimating technique used for all contaminants emitted from this source may be classified as "Above-Average Data Quality", as 100% of the material balanced was accounted for as being emitted to air.

Operating Condition, Individual Maximum Rates of Production

The emission rate calculations for these sources are based on the individual maximum rates of 42.7 kg/hr for S-1 and 4.27 kg/hr for S-2, assuming that the coating process operates for 8 hours.

Emission Rates

Contaminant	10-minute Emission Rates* [g/s]		24-hour Emission Rates [g/s]	
	S1	S2	S1	S2
Toluene	-	-	0.474	0.047
Xylene	1.779	0.178	0.593	0.059
Methyl isobutyl ketone	-	-	0.198	0.020
Methyl alcohol	-	-	0.791	0.079
2-Ethoxyethyl acetate	0.119	0.012	0.040	0.004
Glycol Ether EE	0.119	0.012	0.040	0.004
Methyl ethyl ketone	-	-	0.988	0.099
Isopropyl alcohol	-	-	0.040	0.004
Ethanol	-	-	0.040	0.004
N-butyl alcohol	0.119	0.012	0.040	0.004
2 Methylbutyl Alcohol	-	-	0.020	0.002
Amyl Alcohol	-	-	0.040	0.004
n Propoxypropanol	-	-	0.040	0.004

* - 10-minute emission rates are based on a constant coating usage rate over a period of 1 hour.

Source S7

Supporting Calculations

Methodology: Mass Balance (MB)

During the preparation process, 1 kg of 100% methylene chloride is used for a 30 minute period, no other materials are used in the preparation area. While the methylene chloride is used only for 30 minutes, the entire preparation process takes 60 minutes. It is assumed that all the methylene chloride is volatilized and emitted to the atmosphere. The emission takes place over 30 minutes; however, the impact is being assessed against a 24-hour standard and it is therefore, permissible to average that emission rate over 24 hours. It is assumed that preparations that utilize methylene chloride take place once every hour.

Source ID	S7
	Preparation Area
Usage Rate [kg/30 minutes methylene chloride]	1.00
Preparation Throughput [Preps/hr]	1

Sample Calculation: Methylene Chloride emissions from S-7

Methylene Chloride Emission Rate =	Usage Rate [kg/hr] × 1000 [g/kg] × 1/60 [min/s] × 8 [hr/d] × 24 [d/hr]
Methylene Chloride Emission Rate =	1.00 kg/30min × 1000g/kg × 1min/60s × 8hr/1d × 1d/24hr
Methylene Chloride Emission Rate =	0.185 g/s

Data Quality: Above Average

In accordance with section 8.3.2 of the ESDM Procedure Document, the emission rate estimating technique used for all contaminants emitted from this source may be classified as "Above-Average Data Quality", as 100% of the material balanced was accounted for as being emitted to air.

Operating Condition, Individual Maximum Rates of Production

The emission rate calculation for this source is based on a maximum rate of 1 kg per 30 minutes. The preparation process is carried out once every hour for each hour of operation. It is assumed that the process operates for 8 hours.

Supporting Calculations

Source S10

Methodology: Emission Factor (EF)

The U.S. EPA Chapter 1.4, Natural Gas Combustion (07-98), External Sources for boilers of less than 100 MMBtu/hr emission factor is 100 pounds of NO_x per million standard cubic feet. The emission factor has data quality rating of "B".

List of Combustion Equipment

Equipment Identification	Ratings
	[Btu/hr]
H1- Heater	800,000
H2- Heater	800,000
H3- Heater	800,000
H4- Heater	800,000
H5- Heater	800,000
H6- Heater	800,000
H7- Heater	800,000
H8- Heater	800,000
H9- Heater	800,000
H10- Heater	800,000
H11- Heater	800,000
H12- Heater	800,000
H13- Heater	800,000
H14- Heater	800,000
H15- Heater	800,000
H16- Hot Water Tank	800,000
TOTAL	12,800,000

Sample Calculation: Total nitrogen oxides emissions for total HVAC equipment

1-hr emission rate calculation:

Nitrogen Oxides Emission Rate = Total HVAC equipment rating [Btu/hr] × 100/10⁶ [lb/scf] × 1/1020 [scf/Btu] × 1/3600 [hr/s] × 1000/2.205 [g/lb]
 Nitrogen Oxides Emission Rate = 12,800,000 Btu/hr × 100lb/10⁶ scf × 1 scf/1020 Btu × 1hr/3600s × 1000g/2.205lb
 Nitrogen Oxides Emission Rate = 0.158 g/s

24-hr emission rate calculation:

Nitrogen Oxides Emission Rate = Total HVAC equipment rating [Btu/hr] × 100/10⁶ [lb/scf] × 1/1020 [scf/Btu] × 1/3600 [hr/s] × 1000/2.205 [g/lb]
 Nitrogen Oxides Emission Rate = 12,800,000 Btu/hr × 100lb/10⁶ scf × 1 scf/1020 Btu × 1hr/3600s × 1000g/2.205lb
 Nitrogen Oxides Emission Rate = 0.158 g/s

Data Quality: Above Average

In accordance with section 8.3.2 of the ESDM Procedure Document, the emission rate estimating technique used for all contaminants emitted from this source may be classified as "Above-Average Data Quality", as 100% of the material balanced was accounted for as being emitted to air.

Operating Condition, Individual Maximum Rates of Production

The emission rate calculation for this source is based on each piece of combustion equipment operating simultaneously at its maximum firing rate.

Source H17 - Boiler

Supporting Calculations

Methodology: Emission Factor (EF)

The U.S. EPA Chapter 1.4, Natural Gas Combustion (07-98), External Sources for boilers of less than 100 MMBtu/hr emission factor is 100 pounds of NO_x per million standard cubic feet. The emission factor has data quality rating of "B".

List of Combustion Equipment

Equipment Identification	Ratings
	[Btu/hr]
H17 - Boiler	9,900,000

Sample Calculation: Nitrogen oxides emissions for Boiler

Nitrogen Oxides Emission Rate = Equipment rating [Btu/hr] $\times 100/10^6$ [lb/scf] $\times 1/1020$ [scf/Btu] $\times 1/3600$ [hr/s] $\times 1000/2.205$ [g/lb]
Nitrogen Oxides Emission Rate = 9,900,000 Btu/hr $\times 100\text{lb}/10^6$ scf $\times 1$ scf/1020 Btu $\times 1\text{hr}/3600\text{s} \times 1000\text{g}/2.205\text{lb}$
Nitrogen Oxides Emission Rate = 0.122 g/s

Data Quality: Above Average

In accordance with section 8.3.2 of the ESDM Procedure Document, the emission rate estimating technique used for all contaminants emitted from this source may be classified as "Above-Average Data Quality", as 100% of the material balanced was accounted for as being emitted to air.

Operating Condition, Individual Maximum Rates of Production

The emission rate calculation for this source is based on each piece of combustion equipment operating simultaneously at its maximum firing rate.

APPENDIX B

Supporting Information for Assessment of Negligibility ACME Inc.

Supporting Information for Assessment of Negligibility Acme Inc.

Sources were screened for negligibility using the following screening protocols listed in the ESDM Procedure Document (Section 7).

- Fugitive dust from on-site roadways (Section 7.4.)
- Combustion of natural gas and propane (Section 7.1.1)
- Sources listed on Table B-3 (Section 7.2.1)
- Sources that are insignificant relative to total emissions (Section 7.2.2)
- Generalized guidance to identifying Insignificant or Significant Sources and Contaminants (Section 7.3)
- Identifying significant contaminants using an emission threshold (Section 7.1.2)

The results of the screening are discussed in greater detail in the following text.

Fugitive Road Dust:

The Facility is not listed in Table 7-2 or 7-3 of Section 7.4 of the ESDM Procedure Document and accordingly dust emissions from these sources can be considered as insignificant.

Combustion of Natural Gas and Propane:

As per Section 7.1.1 of the ESDM Procedure Document, contaminants other than NO_x are generally considered negligible from this type of source and only NO_x has been assessed for Source S-10.

Supporting Information for Assessment of Negligibility Acme Inc.

Sources Listed on Table B-3

Table B-3 of the ESDM Procedure Document lists sources that can be considered to be insignificant; the following sources at the Facility are listed on Table B-3.:
Maintenance welding performed at Source S-5 Maintenance Shop is listed on Table B-3.
The Facility has one (1) maintenance person that repairs equipment on as-needed basis.
Major equipment repairs are sent off-site.
Nitrogen venting from Source S-6 Nitrogen Blanket Tank is listed on Table B-3.

Sources that are Insignificant Relative to Total Emissions:

The ministry has provided additional guidance to the Generalized Guidance in Chapter 7.3 of ESDM Procedure Document through the O. Reg. 419/05 Q&A process regarding Semi-Quantitative Correlative Assessments (Q8-7 Round 2 March 10, 2006).

In general using this guidance a source may be considered negligible if the emissions from one source of contaminants are similar (same contaminants and same relative proportions of contaminants) to another source of contaminants *and* one of the sources would have much higher emissions rates than the other *and* the nature of their emission is similar (resultant dispersion impact from either source are the same) then the smaller source can be classified as insignificant provided the resultant POI impact of all the contaminants does not result in non-compliance *or* that the margin of compliance is so slight that if the smaller source or sources were included the aggregate POI impact of all the contaminants would result in non-compliance.

Using this guidance it is possible to conclude that sources of contaminants are negligible by comparing the difference in usage rates between sources at a Facility. If the usage rate of materials in the process are much less than the usage rates in other significant sources at the same facility, then the lesser source may be considered negligible.

Appendix B
Acme Othertown Plant, Project 08-5555-420

Supporting Information for Assessment of Negligibility
Acme Inc.

There are four sources at the Facility which are similar to the main production line sources at the Facility. The sources are similar in that they involve the volatilization of coating. For sources S-3 and S-4 their usage rates at 1.0 kg/hr and 2.1 kg/hr are much lower than the usage rate of 42.7 kg/hr for the main production line. For tank sources S-8 and S-9 the low filling rate of 20,000 litres per hour (0.0056 m³/s) and the expected concentration of volatiles in the headspace resulting from the coating material evaporating would result in an emission rate much lower than the evaporation of all the volatiles in the coating used in the main production booth at 42.7 kg/hr.

Source Information		Rationale	Support for Rationale
Source ID	Source Description		
S-3	R&D Area	Semi-Qualitative Correlative Assessment	This line uses the same type of material as the main production line but at a much lower rate of 1.0 kg/hour compared to 42.7kg/hour
S-4	Repair Booth	Semi-Qualitative Correlative Assessment	This line uses the same type of material as the main production line but at a much lower rate of 2.1 kg/hour compared to 42.7 kg/hour
S-8, S-9	Coating Storage Tanks Coating Mixing	Semi-Qualitative Correlative Assessment	Peak emission from tanks will occur during filling. At a maximum filling rate of 0.005 m ³ /s even if the substance in the tank was a pure volatile, the density of the vapor in air at room temperature would not be high enough that the resultant emission would be significant compared to the usage rate of 42.7 kg/hour of the main production line.

Supporting Information for Assessment of Negligibility Acme Inc.

Identifying significant contaminants using an emission threshold

Using the Threshold Calculator provided in Chapter 7.1.2 of the ESDM Procedure Document the following Emission Thresholds were calculated:

Isopropyl alcohol (CAS # 67-63-0) from Sources S-1 & S-2

Isopropyl alcohol is emitted from sources S-1 and S-2 only.

Shortest distance from S-1 exhaust stack to the Property-Line (in an area classified as urban) is 60 metres. Shortest distance from S-2 exhaust stack to the Property-Line (in an area classified as urban) is 70 metres.

Effects-based standard in Schedule 3 of the Regulation for Isopropyl alcohol is 7,300 µg/m³ (maximum 24-hour average).

Maximum 1-hour average Dispersion Factor for 60 metres can be interpolated from, Table B-1 Guidance for Screening-Out with Dispersion Factors of Appendix B of the ESDM Procedure Document. The shortest distance from one of the sources is 60 metres; the Dispersion Factor from Table B-1 for 60 metres is 4,600 µg/m³ per g/s.

Section 7.1.2 of the Procedure Document, entitled Identifying Significant Contaminants Using an Emission Threshold indicates that in most cases, contaminants that are emitted from a specific facility may be identified as negligible when they are below emission thresholds that are developed using the following formula:

$$\text{Emission Threshold (g/s)} = 0.5 \times \text{MOE Limit (}\mu\text{g/m}^3\text{)} \\ \text{Dispersion Factor From Table B-1 (}\mu\text{g/m}^3 \text{ per g/s emission)}$$

The criteria for Isopropyl alcohol under Schedule 3 of O. Reg. 419/05 is 7,300 µg/m³ based on a 24 hour average. Section 7.1.2 of the Procedure Document requires that the threshold calculator must use the effects-based air quality standards (in Schedule 3 of the Regulation) or ambient air quality criteria taking into account the averaging time of the criteria. In this case, the averaging time is 24 hour which requires a conversion of the one-hour averaging time for the Dispersion Factor from Table B-1.

The Dispersion Factor from Table B-1 converted to Maximum 24-hour average is

$$4,600 \times (1/24)^{0.28} = 1,889 \mu\text{g/m}^3 \text{ per g/s.}$$

The Site-Specific Emission Threshold for Isopropyl alcohol is:

$$0.5 \times (7,300/1,889) = 1.93 \text{ g/s or } 167.0 \text{ kilograms per 24-hour period.}$$

The calculated aggregate emission rate for Isopropyl alcohol from Sources S-1 and S-2 is:

$$(1\% \times 42.7 \text{ kg/hr} + 1\% \times 4.27 \text{ kg/hr}) \times 8 \text{ hr/24 hr} = 3.76 \text{ kg per 24 hr}$$

3.76 kg per 24-hour period is less than 167.0 kg per 24-hour period; therefore, emissions of Isopropyl alcohol from Source S-1 and S-2 are considered negligible using the emission threshold calculations provided in the Procedure Document.

The Threshold Calculator was applied to identify other contaminants as negligible; the results are tabulated in the following Table.

Appendix B
Acme Othertown Plant, Project 08-5555-420

Supporting Information for Assessment of Negligibility
Acme Inc.

Contaminant Name	Contaminant CAS Number	Source ID	Source Description	MOE Criteria ($\mu\text{g}/\text{m}^3$)	Criteria Averaging Time	Distance to Property Line (m)	Table B-1 Dispersion Factor ($\mu\text{g}/\text{m}^3$)	Table B-1 Dispersion Factor Converted To Criteria Averaging Time ($\mu\text{g}/\text{m}^3$)	Emission Threshold (g/s)	Emission Threshold		Aggregate Contaminant Emission Rate		Significant?
Ethanol	64-17-5	S-1	Main Production Line	19,000	1 hour	60	4,600	1,889	5.03	18.11	kg/hr	0.157	kg/hr	No
		S-2	Custom Production Area			70								
Isopropyl alcohol	67-63-0	S-1	Main Production Line	7,300	24 hour	60	4,600	1,889	1.93	167.0	kg/24hr	3.76	kg/24hr	No
		S-2	Custom Production Area			70								
Acetone	67-64-1	S-7	Preparation Booth	11,880	24 hour	80	7,740	3,179	1.87	161.4	kg/24hr	16.0	kg/24hr	No

APPENDIX C

Dispersion Modelling Data and Electronic Files (on CD)

CO STARTING
 CO TITLEONE ACME Other Town
 CO TITLETWO MOE Regional MET DATA
 CO MODELOPT DFAULT CONC
 CO AVERTIME 1 24
 CO POLLUTID NOx
 CO RUNORNOT run
 CO ERRORFIL ERRORS.OUT
 CO FINISHED

SO STARTING

**Sources - Aermap Output

**			X-UTM	Y-UTM	Z
SO ELEVUNIT	METERS				
SO LOCATION	S_1	POINT	595585.30	4841606.90	246.00
SO LOCATION	S_2	POINT	595595.50	4841567.00	246.00
SO LOCATION	S_7	POINT	595626.40	4841583.70	246.00
SO LOCATION	H17	POINT	595632.50	4841616.20	245.79
SO LOCATION	S_10	VOLUME	595647.00	4841583.00	246.00

** Point Source	QS	HS	TS	VS	DS
**					
SO SRCPARAM S_1	0	11.2	308	18.7	0.60
SO SRCPARAM S_2	0	11.2	303	20.1	0.45
SO SRCPARAM S_7	0	11.2	303	20.1	0.45
SO SRCPARAM H17	0.12	15.3	410	6.3	0.50

**Volume Source	QS	RelHt	SyInit	SzInit
**				
SO SRCPARAM S_10	0.16	8.2	32.1	3.8

** BPIP Output:

SO BUILDHGT S_1	8.20	8.20	8.20	8.20	8.20	8.20
SO BUILDHGT S_1	8.20	8.20	8.20	8.20	8.20	8.20
SO BUILDHGT S_1	8.20	8.20	8.20	8.20	8.20	8.20
SO BUILDHGT S_1	8.20	8.20	8.20	8.20	8.20	8.20
SO BUILDHGT S_1	8.20	8.20	8.20	8.20	8.20	8.20
SO BUILDHGT S_1	8.20	8.20	8.20	8.20	8.20	8.20
SO BUILDWID S_1	209.64	215.71	215.23	208.21	199.36	184.87
SO BUILDWID S_1	164.77	139.66	110.30	142.87	171.09	194.12
SO BUILDWID S_1	211.25	221.96	225.93	223.03	213.36	197.20
SO BUILDWID S_1	209.64	215.71	215.23	208.21	199.36	184.87
SO BUILDWID S_1	164.77	139.66	110.30	142.87	171.09	194.12
SO BUILDWID S_1	211.25	221.96	225.93	223.03	213.36	197.20
SO BUILDLEN S_1	142.87	171.09	194.12	211.25	221.96	225.93
SO BUILDLEN S_1	223.03	213.36	197.20	209.64	215.71	215.23
SO BUILDLEN S_1	208.21	199.36	184.87	164.77	139.66	110.30
SO BUILDLEN S_1	142.87	171.09	194.12	211.25	221.96	225.93
SO BUILDLEN S_1	223.03	213.36	197.20	209.64	215.71	215.23
SO BUILDLEN S_1	208.21	199.36	184.87	164.77	139.66	110.30
SO XBADJ S_1	-83.03	-85.13	-84.65	-81.59	-76.06	-68.21
SO XBADJ S_1	-58.29	-46.61	-33.50	-38.53	-42.39	-44.96
SO XBADJ S_1	-46.17	-45.97	-44.38	-41.43	-37.23	-31.90
SO XBADJ S_1	-59.84	-85.96	-109.48	-129.66	-145.91	-157.72
SO XBADJ S_1	-164.74	-166.75	-163.70	-171.11	-173.32	-170.27
SO XBADJ S_1	-162.04	-153.39	-140.50	-123.33	-102.42	-78.40
SO YBADJ S_1	-66.29	-65.47	-62.65	-57.94	-53.71	-48.06
SO YBADJ S_1	-40.95	-32.60	-23.25	-11.59	0.42	12.41
SO YBADJ S_1	24.03	34.92	44.75	53.22	60.07	65.10
SO YBADJ S_1	66.29	65.47	62.65	57.94	53.71	48.06
SO YBADJ S_1	40.95	32.60	23.25	11.59	-0.42	-12.41

Crimson Editor

PAGE 224

CONC

DFAULT ELEV

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF NOx IN MICROGRAMS/M**3
**

GROUP ID	DATE	NETWORK	RECEPTOR	(XR, YR,
ZLEV, ZHILL, ZFLAG)	(YYMMDDHH)			
AVERAGE CONC				
OF TYPE GRID-ID				
ALL	HIGH	1ST HIGH VALUE IS	216.10231	ON 96080623: AT (595595.19, 4841664.50,
245.83,	245.83,	0.00) DC		
HIGH	2ND HIGH VALUE IS	214.50955	ON 99061105: AT (595595.19, 4841664.50,	
245.83,	245.83,	0.00) DC		
HIGH	3RD HIGH VALUE IS	214.25543	ON 00071223: AT (595595.19, 4841664.50,	
245.83,	245.83,	0.00) DC		

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** AERMOD - VERSION 07026 ***
09/09/08
*** MOE Regional MET DATA
19:21:37

**MODELOPTs:

PAGE 225

CONC

DFAULT ELEV

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF NOx IN MICROGRAMS/M**3
**

GROUP ID	DATE	NETWORK	RECEPTOR	(XR, YR,
ZLEV, ZHILL, ZFLAG)	(YYMMDDHH)			
AVERAGE CONC				
OF TYPE GRID-ID				
ALL	HIGH	1ST HIGH VALUE IS	99.15858	ON 99120824: AT (595625.19, 4841664.50,
245.00,	245.00,	0.00) DC		
HIGH	2ND HIGH VALUE IS	85.54900	ON 99101524: AT (595605.19, 4841664.50,	
245.49,	245.49,	0.00) DC		
HIGH	3RD HIGH VALUE IS	81.25394	ON 00091024: AT (595595.19, 4841664.50,	
245.83,	245.83,	0.00) DC		

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** AERMOD - VERSION 07026 ***
09/09/08
*** MOE Regional MET DATA
19:21:37

**MODELOPTs:

PAGE 226

CONC

DFAULT ELEV

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
A Total of 14 Warning Message(s)
A Total of 998 Informational Message(s)

A Total of 0 Calm Hours Identified

A Total of 998 Missing Hours Identified (2.28 Percent)

***** FATAL ERROR MESSAGES *****
 *** NONE ***

***** WARNING MESSAGES *****
SO W320 24 PPARM :Input Parameter May Be Out-of-Range for Parameter QS
SO W320 25 PPARM :Input Parameter May Be Out-of-Range for Parameter QS
SO W320 26 PPARM :Input Parameter May Be Out-of-Range for Parameter QS
MX W441 19928 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041008
MX W441 19929 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041009
MX W441 19930 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041010
MX W441 19931 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041011
MX W441 19932 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041012
MX W441 19933 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041013
MX W441 19934 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041014
MX W441 19935 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041015
MX W441 19936 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041016
MX W441 19937 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041017
MX W441 19938 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041018

*** AERMOD Finishes Successfully ***

APPENDIX D
Material Safety Data Sheets
(Complete package of MSDS provided on attached CD)

MATERIAL SAFETY DATA SHEET

Goocoat Three

FILE NO.: 568423
MSDS DATE: 7/07/07

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION


PRODUCT NAME: Goocoat Three

SYNONYMS: 

PRODUCT CODES: 

MANUFACTURER: 

DIVISION: 

ADDRESS: 

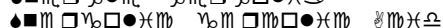
EMERGENCY PHONE: (149) 555-1234

CHEMTREC PHONE: (149) 555-5678

OTHER CALLS:

FAX PHONE: (149) 555-1235

CHEMICAL NAME: 

CHEMICAL FAMILY: 

CHEMICAL FORMULA: 

PRODUCT USE: 

PREPARED BY: 

SECTION 1 NOTES:



SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Ingredients</u>	<u>CAS Number</u>	<u>Weight</u>	<u>ACGIH</u>	<u>OSHA</u>
Toluene	108-88-3	12.0%	100 ppm	100 ppm
Xylene	1330-20-7	15.0%	100 ppm	100 ppm
Methyl isobutyl ketone	108-10-1	5.0%		
Methyl alcohol	67-56-1	20.0%		
Ethanol	64-17-5	1.0%		
N-butyl alcohol	71-36-3	1.0%		
2 Methylbutyl Alcohol	137-32-6	0.5%		
Amyl Alcohol	71-41-0	1.0%		
n Propoxypropanol	1569-01-3	1.0%		

SECTION 2 NOTES:



ATTACHMENT 4
ACOUSTIC ASSESSMENT REPORT

**ACOUSTIC ASSESSMENT REPORT
ACME INC
OTHERTOWN, ONTARIO
VERSION 1.0**

Prepared for

Acme Inc.
12 Capper Crescent
Othertown, Ontario
A1B 2C3

Prepared by



Momo McMahon, M.A.Sc.
Noise Specialist

Reviewed by



Fred S. Astare, B.A.Sc., P.Eng.
Noise Engineer

DISTRIBUTION:

- 2 Copies - Ministry of the Environment, EAAB, Toronto, Ontario
- 1 Copy - Ministry of the Environment District Office, Othertown Ontario
- 2 Copies - Acme Inc., Othertown, Ontario

October 23, 2008

08-5555-420

Version Control

Rev.	Date	Revision Description	Reviewer Initials
1.0	October 23, 2008	PROPOSED - Original document for BCCofA Application	FSA

EXECUTIVE SUMMARY

P.E.S. Stacks Inc. (P.E.S. Stacks) was retained by Acme Inc. to prepare an Acoustic Assessment Report (AAR) in support of an application for a Basic Comprehensive Certificate of Approval, (CofA [Air & Noise]). The purpose of this AAR is to determine the noise and vibration impact from the operations of equipment at the Acme facility (the Facility) on the most sensitive points of reception in all critical directions in the vicinity of the Facility.

The Facility is located at 12 Capper Crescent in Othertown, Ontario. The facility produces coated metal products. The facility and its equipment operate from 8:30AM to 17:30 only, seven days per week, up to 50 weeks per year. Operating equipment outside these hours is limited to HVAC equipment and the boiler.

Noise sources of concern include cooling equipment, process and boiler stacks, HVAC units, on-site shipping trucks and a tanker delivery truck with a blower unit.

On-site sound level measurements were completed on several occasions during September 2008. The measured sound levels and manufacturer's data were used as inputs to a predictive acoustical model to quantify outdoor noise emission associated with the facility. Acoustic assessment criteria were established in accordance with sound level limits defined in MOE publication NPC 205.

Four (4) locations have been identified as being representative of the most sensitive points of reception (PORs) in the vicinity of the Facility. These receptor locations can be best defined as Class 2 urban, as per MOE Publication NPC-205. Acme Inc. representatives reported that the Facility is not a source of noise complaints. The Facility is not a significant source of vibration.

The noise measurements and analysis indicated that current sound emissions of the facility exceed applicable sound level limits during the predictable worst case hour of operation. However, implementation of the mitigation measures proposed by P.E.S. Stacks will reduce offsite sound levels to below the MOE noise limit.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	II
TABLE OF CONTENTS	III
ACOUSTIC ASSESSMENT REPORT CHECK-LIST	V
1.0 INTRODUCTION.....	1
2.0 FACILITY DESCRIPTION.....	2
3.0 NOISE SOURCE SUMMARY	3
4.0 POINTS OF RECEPTION.....	3
5. ASSESSMENT CRITERIA (PERFORMANCE LIMITS)	4
6. IMPACT ASSESSMENT.....	6
7. PROPOSED NOISE CONTROL MEASURES	7
8. CONCLUSION	7

LIST OF TABLES

Table 1	Noise Source Summary Table
Table 2	Performance Limit(s) Summary Table
Table 3	Point of Reception Noise Impact Table (Before Mitigation)
Table 4	Acoustic Assessment Summary Table (Before Mitigation)
Table 5	Barrier Description
Table 6	Silencer Minimum Dynamic Insertion Loss Performance (dB)
Table 7	Point of Reception Noise Impact Table (After Mitigation)
Table 8	Acoustic Assessment Summary Table (After Mitigation)

LIST OF FIGURES

Figure 1	Scaled Area Location Plan
Figure 2	Site Layout Plan
Figure 3	Prediction Results (Before Mitigation)
Figure 4	Mitigation Measure – Barriers
Figure 5	Prediction Results (After Mitigation)

LIST OF APPENDICES

Appendix A	Land Use Zoning Designation Plan
Appendix B	Long-term Noise Monitoring and Weather Data
Appendix C	Stamson Calculation & Road Traffic Data
Appendix D	Instrumentation
Appendix E	Measurement Data and Manufacturer's Data
Appendix F	Insignificant Noise Sources
Appendix G	Sample Calculations
Appendix H	Electronic Modelling Files

Ministry
of the
Environment

Ministère
de
l'Environnement



ACOUSTIC ASSESSMENT REPORT CHECK-LIST

Company Name: Acme Inc.

Company Address: 123 Anywhere Street
Anytown, Ontario N9N 1A1

Location of Facility: 12 Capper Crescent
Othertown, Ontario A1B 2C3


The attached Acoustic Assessment Report was prepared in accordance with the guidance in the ministry document "Information to be Submitted for Approval of Stationary Sources of Sound" (NPC 233) dated October 1995 and the minimum required information identified in the check-list on the reverse of this sheet has been submitted.

Company Contact:

Name: Virginia Trust-Worthy

Title: General Manager

Phone Number: (905) 555-1985

Signature: 


Date: October 23, 2008

Technical Contact:

Name: Fred Astare

Representing: P.E.S. Stacks Inc.

Phone Number: (905) 555 - 2346

Signature: 

Date: October 23, 2008

ACOUSTIC ASSESSMENT REPORT CHECKLIST

Required Information			
		Submitted	Explanation/Reference
1.0	Introduction (Project Background and Overview)	<input checked="" type="checkbox"/> Yes	Section 1.0
2.0	Facility Description		
	2.1 Operating hours of facility and significant Noise Sources	<input checked="" type="checkbox"/> Yes	Section 2.0
	2.2 Site Plan identifying all significant Noise Sources	<input checked="" type="checkbox"/> Yes	Figure 2
3.0	Noise Source Summary		
	3.1 Noise Source Summary Table	<input checked="" type="checkbox"/> Yes	Table 1
	3.2 Source noise emissions specifications	<input checked="" type="checkbox"/> Yes	Appendix E
	3.3 Source power/capacity ratings	<input checked="" type="checkbox"/> Yes	Appendix E
	3.4 Noise control equipment description and acoustical specifications	<input checked="" type="checkbox"/> Yes	Section 7.0 and Figure 4
4.0	Point of Reception Noise Impact Calculations		
	4.1 Point of Reception Noise Impact Table	<input checked="" type="checkbox"/> Yes	Table 3 & Table 7
	4.2 Point(s) of Reception (POR) list and description	<input checked="" type="checkbox"/> Yes	Section 4.0
	4.3 Land-use Zoning Plan	<input checked="" type="checkbox"/> Yes	Appendix A
	4.4 Scaled Area Location Plan	<input checked="" type="checkbox"/> Yes	Figure 1
	4.5 Procedure used to assess noise impacts at each POR	<input checked="" type="checkbox"/> Yes	Section 6.0
	4.6 List of parameters/assumptions used in calculations	<input checked="" type="checkbox"/> Yes	Appendix G
5.0	Acoustics Assessment Summary		
	5.1 Acoustic Assessment Summary Table	<input checked="" type="checkbox"/> Yes	Section 6.0
	5.2 Rationale for selecting applicable noise guideline limits	<input checked="" type="checkbox"/> Yes	Section 5.0
	5.3 Predictable Worst Case Impacts Operating Scenario	<input checked="" type="checkbox"/> Yes	Section 3.0
6.0	Conclusions		
	Statement of compliance with the selected noise performance limits	<input checked="" type="checkbox"/> Yes	Section 8.0
7.0	Appendices (Provide details such as)	<input checked="" type="checkbox"/> Yes	
	Listing of Insignificant Noise Sources	<input checked="" type="checkbox"/> Yes	Appendix F
	Manufacture's Noise Specifications	<input checked="" type="checkbox"/> Yes	Appendix E
	Calculations	<input checked="" type="checkbox"/> Yes	Appendix G
	Instrumentation	<input checked="" type="checkbox"/> Yes	Appendix D
	Meteorology during Sound Level Measurements	<input checked="" type="checkbox"/> Yes	Appendix B
	Raw Data from Measurements	<input checked="" type="checkbox"/> Yes	Appendix E
	Drawings (Facility / Equipment)	<input checked="" type="checkbox"/> Yes	Figures 1, 2 and 3

1.0 INTRODUCTION

P.E.S. Stacks Inc. (P.E.S. Stack) was retained by Acme Inc. (Acme) to prepare an Acoustic Assessment Report (AAR) in support of an application for a Basic Comprehensive Certificate of Approval (Air & Noise) (CofA [Air & Noise]). The Acme facility (the Facility) is located at 12 Capper Crescent, Othertown, Ontario. This report has been prepared in accordance with the applicable MOE publications (i.e., NPC-233, NPC-103, NPC-205) and “Basic Comprehensive Certificates of Approval (Air). The Facility is currently operating under CofA # 5678-GHIJKL. The Facility originally met the minimum separation distance as established by the MOE screening procedure; however, due to recent changes in surrounding land use the Facility no longer meets the minimum separation distance, and as such, now requires an Acoustic Assessment.

The purpose of the assessment is to evaluate the overall noise emissions of the facility with respect to MOE noise guidelines. Background sound levels in the vicinity of the facility are dominated by local road traffic. The facility is not a significant source of vibration and therefore there was no need for a vibration assessment.

A scaled area location plan showing the site with respect to the surrounding area is provided in Figure 1. A site layout plan, showing the facility arrangement and source locations, is provided in Figure 2. A land use zoning designation plan is provided in Appendix A.

Noise sensitive points of reception were selected that are representative of all sensitive points of reception in all directions around the facility. For the purpose of this assessment, four (4) locations (two houses, an apartment building and a hotel) have been selected to represent the sensitive Point(s) of Reception (POR(s)), labelled as POR1, POR2, POR3 and POR4 in Figure 1. The closest POR is located approximately 170 m of the facility property line (see Figure 1).

2.0 FACILITY DESCRIPTION

The Facility produces coated metal products for use in the aviation industry. The main manufacturing process consists of coating metal components with a solvent based coating. The metal parts are fabricated elsewhere; the operations at the Facility are limited to the coating process. The operations are divided into several production areas: the main production booth, a smaller custom production area, and a research and development area that has a small coating operation.

The Facility operates from 08:30 to 17:30 hours, seven days per week, up to 50 weeks per year, with minimal equipment operating outside these hours, which is limited to HVAC equipment and the boiler.

The building itself is of solid concrete construction with no openings. All building ventilation occurs through the rooftop ventilation systems. No architectural or mechanical drawings were available that could be included in this AAR. The Facility is located north-west of Plank Parkway at the intersection of Missing Avenue and Capper Crescent, and the major roads in the area include Plank Parkway, Antamina Street, and Spider Street. The Facility is located close to the centre of an area zoned for industrial use, which is surrounded on all sides by areas mainly zoned for general commercial and residential use. A zoning map is included in Appendix A.

It is P.E.S. Stacks' understanding that there have been no complaints regarding noise due to the operation of this facility.

3.0 NOISE SOURCE SUMMARY

In preparing the assessment, every reasonable effort was taken by P.E.S. Stacks to ensure that the source numbering convention was consistent with the information submitted by Acme, to the MOE, as part of the documentation provided in the Emission Summary and Dispersion Modelling Report (ESDM). The primary noise sources of concern are summarized in Table 1, in the Tables section, and include the following:

- Thirteen (13) HVAC units ;
- Eight (8) process vents;
- One (1) Condenser unit with a fan and a compressor;
- Up to One on-site shipping truck which could enter and exit the site in a given hour(i.e. up to 2 movements);
- One (1) regular delivery tanker truck which could enter and exit the site in a given hour(i.e. up to 2 movements) with blower; and
- One (1) boiler stack.

The locations of the significant noise sources can be found in Figure 2. The significant noise sources include process vents, a condenser unit, a tanker truck, HVAC units, shipping trucks and a boiler stack. It is P.E.S. Stack's understanding that no noise controls have yet been implemented on the equipment. There are a number of insignificant sources at the Facility, listed in Appendix F.

4.0 POINTS OF RECEPTION

A total of four (4) PORs have been identified as being representative of the most sensitive PORs in the vicinity of the Facility, labelled POR1, POR2, POR3, and POR4 in Figure 1. As per MOE noise guidelines "Point of reception" means any point on the premises of a person where sound or vibration originating from other than those premises is received. For the purpose of an AAR the points with "the predictable worst case noise impacts" must be considered. The PORs shown in Figure 1 are summarized below.

POR1: Is a two (2) storey apartment. The most sensitive location of reception at this POR is the top floor of the building at a height of 4.5m. The POR is located on a residential street north-east of Antamina Street, east of the Facility, near Plank Parkway, approximately 485 m from the facility property line. Actual source to receptor separation distances are provided in Table 3.

POR2: Is a five (5) storey hotel. The most sensitive location of reception at this POR is the top floor of the building at a height of 13.5m. The POR is located at 2420 Antamina Street, north of the Facility, approximately 390 m from the facility property line. Actual source to receptor separation distances are provided in Table 3.

POR3: Is a single storey residence. The most sensitive location of reception at this POR is at a height of 1.5m. The POR is located at 1350 Spider Street, north-west of the Facility, approximately 290 m from the facility property line. Actual source to receptor separation distances are provided in Table 3.

POR4: Is a single storey residence. The most sensitive location of reception at this POR is at a height of 1.5m. The POR is located on a residential street north-east of Antamina Street, directly northeast of the Facility, approximately 170 m from the facility property line. Actual source to receptor separation distances are provided in Table 3.

There are no PORs within 500 m to the south from the Facility.

5.0 ASSESSMENT CRITERIA (PERFORMANCE LIMITS)

The Acme facility is located in Othertown, Ontario. The subject area is defined as Class 2 urban, as per MOE Publication NPC-205. This publication describes a Class 2 Area as “an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 areas, and in which a low ambient sound level, normally occurring only between 23:00 and 07:00 hours in Class 1 Areas, will typically be realized as early as 19:00 hours.” The One Hour Equivalent Sound Level (L_{eq}), for a POR in a Class 2 area are summarized below.

Time Period	MOE Exclusionary Sound Level Limit (dBA)
Day-time (07:00 – 19:00)	50
Evening (19:00 – 23:00)	45
Night-time (23:00 – 07:00)	45

As the operations differ between day, evening and night time periods, the predicted worst-case noise impacts at the PORs due to the Facility operations have been compared to the applicable sound level limits for the day, evening and night time periods as prescribed in MOE publication NPC-205.

The four (4) identified PORs are exposed to different background road traffic noise levels. Therefore, varying methods have been used to establish the applicable performance limits for

day-time operation. The resulting Performance Limit at each POR has been determined in accordance with Publication NPC-205 and is the greater of either:

- the sound level limit based on the minimum background sound level that occurs or is likely to occur during operation of the source(s) under assessment; or
- the MOE exclusionary limits, as indicated in Table 205-1 for urban areas.

Site measurements were conducted on September 9th, 2008. Weather during the September 9th, 2008 measurement date included mainly clear atmospheric conditions, with temperatures ranging from 10 to 14°C. Winds were predominately from the southeast at speeds of 4 to 10 km/hour during the actual measurement period. It was observed that stationary source noise levels were steady.

P.E.S. Stacks Inc. staff was advised that the Facility planned a shut down between September 12, 2008 and September 25, 2008. This time period was chosen for long-term noise monitoring to be carried out at POR1. Results indicated that an elevated background noise level exists during the day-time period with a minimum day-time 1-hr L_{eq} of 54 dBA, influenced mainly by road traffic noise from Plank Parkway to the southeast and Antamina Street. Due to lower traffic volumes during evening and night-time periods, the applicable MOE sound level limits, for evening and night-time periods, in a Class 2 area has been used for POR1 for evening and night-time periods. Long-term noise monitoring results and weather data are summarized in Appendix B.

In establishing the applicable sound level limit for POR2, P.E.S. Stacks predicted noise levels due to road traffic along Antamina Street using STAMSON version 5. This software produced by the MOE implements the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) and the Sound from Trains Environmental Analysis Method (STEAM). The calculations indicated that an elevated background noise level exists during the day-time period with a minimum day-time 1-hr L_{eq} of 52 dBA. Calculations and road traffic data provided by the City of Othertown are given in Appendix C. Due to lower traffic volumes throughout evening and night-time periods, the applicable MOE exclusionary sound levels, for Class 2 area has been used for POR2 for evening and night-time periods.

POR4 is located at a similar distance to Antamina Street as POR2. Therefore, the predicted sound level limits at POR2 are also appropriate for POR4.

An attended spot check measurement at POR3, as per MOE publication NPC-103, indicated that the sound levels at POR3 are consistent with an urban/suburban acoustic environment (i.e., Class 2 as per NPC-205). Therefore, the MOE sound level limits, for day-time (50 dBA) and

evening and night-time periods (45 dBA) in a Class 2 area have been used for POR3. Table 2, in the Tables section, summarizes the applicable sound level limits for each receptor location.

6.0 IMPACT ASSESSMENT

Source sound pressure level measurements at the facility were carried out using a Bobby Dog 944 (Serial #944GT2005) sound level meter/real-time analyzer; calibration certificates are provided in Appendix D.

All relevant sound level measurements taken during the September 9th, 2008, site visit have been documented in 1/3 octave and 1/1 octave band level format and are summarized in Appendix E. Measured sound levels from sources were used to calculate the overall sound power level for each source. Manufacturer's noise data were used for sources that were not operational during the site visit, and these are also included in Appendix E. The noise source sound power levels are summarized in Table 1, in the Tables section, of this report.

The results of the site-specific source measurements taken during the September 9th, 2008 site visit and the manufacturer's data were used as inputs for sound level prediction calculations at the identified receptors. The calculations were performed using a prediction software consistent with the ISO 9613-2 standard. The model took into consideration that the layout of the Facility and the location of the various sources such as rooftop equipment and the tanker truck blower allow the building to provide shielding to certain PORs from some of the significant noise sources. As described in ISO 9613-2, ground factor values that represent the effect of ground absorption on sound levels range between 0 and 1. Based on the specific site conditions, the ground factor values used in the modelling were a ground factor value of 0 for acoustically hard surfaces, such as asphalt and concrete, and a ground factor value of 1 for acoustically soft surfaces, such as grassed or treed areas.

Due to the low on-site truck traffic volumes and therefore low sound levels, the noise from the typical truck movements on site were also modelled the same prediction software referenced above instead of ORNAMENT using site specific noise data.

The predicted sound levels at the identified PORs due to each noise source, based on site-specific measurements or manufacturer's data, are summarized in Table 3 in the Tables section. The table also includes the distance from each source to the identified PORs. Sample calculations are provided in Appendix G. Predicted sound level contours (before mitigation) are shown in Figure 3. The electronic modelling files are provided for exclusive use for review by the MOE in Appendix H. The cumulative noise impacts at the identified PORs are summarized in Table 4 in the Tables section.

7.0 PROPOSED NOISE CONTROL MEASURES

Based on the results presented in Table 4, the implementation of noise control measures will be required to ensure compliance with MOE noise guidelines. An option to adhere includes the implementation of barrier(s) and silencers to mitigate the effects of the significant noise sources. Table 5 and Table 6, in the Tables section, summarize the construction requirements of the barrier(s) and the minimum dynamic insertion loss performance requirements for the silencer. Figure 4 indicates the location of all proposed mitigation measures.

Table 7, in the Tables section, summarizes the predicted sound pressure levels at the PORs with the implementation of the recommended noise control measures. Predicted sound level contours with the recommended mitigation measures in place are shown in Figure 5.

Table 8, in the Tables section, provides a summary of the overall predicted mitigated noise levels at the identified PORs. With the implementation of proposed mitigation measures the predicted sound levels at the identified PORs are at or below the performance limits.

8.0 CONCLUSION

P.E.S. Stacks was retained by Acme Inc. to prepare an Acoustic Assessment Report for their facility located at 12 Capper Crescent, Othertown, Ontario. It was determined that the applicable sound levels (performance limits) are exceeded by up to 6 dBA for the existing operations. With the implementation of recommended mitigation measures specified in Section 7.0, the predicted facility noise impact at the identified PORs will be in compliance with MOE noise limits. P.E.S. Stacks Inc. found that a detailed Noise Abatement Action Plan is not necessary. However, Acme Inc. accepts the obligation to implement the proposed noise control measures within 3 months after the date of issue of the CofA.

REFERENCES

International Organization for Standardization, *ISO 9613-2: Acoustics – Attenuation of Sound During Propagation Outdoors Part 2: General Method of Calculation*, Geneva, Switzerland, 1996.

Ontario Ministry of the Environment, *Publication NPC-205: Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)*, October 1995.

Ontario Ministry of the Environment, *Publication NPC-233: Information to be Submitted for Approval of Stationary Sources of Sound*, October 1995.

Ontario Ministry of the Environment, *Model Municipal Noise Control By-Law Publication NPC-103*, August 1978.

Ontario Ministry of the Environment, *Model Municipal Noise Control By-Law Publication NPC-104*, August 1978.

Environment Assessment and Approvals Branch. *Basic Comprehensive Certificates of Approval (Air) User Guide Version 2.0*. Ontario Ministry of the Environment. April 2004.

Ontario Ministry of the Environment, *Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT)*, October 1989.

Ontario Ministry of the Environment, *STAMSON version 5, Road and rail traffic noise prediction software*, 2000.

Ontario Ministry of the Environment, *Sound from Trains Environmental Analysis Method (STEAM)*, October 1989.

Prediction software implementing ISO-9613

TABLES

Table 1: Noise Source Summary Table

Source ID (ESDM ID)	SOURCE DESCRIPTION	SOUND POWER LEVEL (dBA)	SOURCE LOCATION ¹	SOUND CHARACTERISTICS ¹	EXISTING NOISE CONTROL MEASURES ^{1, 6}	REQUIRED NOISE CONTROL MEASURES ^{1, 7}
H1 (PART OF S10) ⁵	HVAC UNIT	86 ³	O	S	U	U
H2 (PART OF S10) ⁵	HVAC UNIT	82 ⁴	O	S	U	U
H3 (PART OF S10) ⁵	HVAC UNIT	83 ⁴	O	S	U	U
H4 (PART OF S10) ⁵	HVAC UNIT	85 ⁴	O	S	U	U
S1 (S1)	PROCESS VENT/STACK	105 ³	O	S	U	U
S2 (S2)	PROCESS VENT/STACK	103 ³	O	S	U	U
S6 (S6)	PROCESS VENT/STACK	103 ³	O	S	U	U
S7 (S7)	PROCESS VENT/STACK	105 ³	O	S	U	U
S8 (S8)	PROCESS VENT/STACK	105 ³	O	S	U	U
H17 (H17)	BOILER STACK	106 ³	O	S	U	U
H12 (PART OF S10) ⁵	HVAC UNIT	82 ⁴	O	S	U	U
H13 (PART OF S10) ⁵	HVAC UNIT	82 ⁴	O	S	U	U
H14 (PART OF S10) ⁵	HVAC UNIT	82 ⁴	O	S	U	U
H5 (PART OF S10) ⁵	HVAC UNIT	83 ⁴	O	S	U	U
S5 (S5)	PROCESS VENT/STACK	106 ³	O	S	U	U
H6 (PART OF S10) ⁵	HVAC UNIT	82 ³	O	S	U	U
H8 (PART OF S10) ⁵	HVAC UNIT	86 ³	O	S	U	U

Source ID (ESDM ID)	SOURCE DESCRIPTION	SOUND POWER LEVEL (dBA)	SOURCE LOCATION ¹	SOUND CHARACTERISTICS ¹	EXISTING NOISE CONTROL MEASURES ^{1, 6}	REQUIRED NOISE CONTROL MEASURES ^{1, 7}
H9 (PART OF S10) ⁵	HVAC UNIT	82 ³	O	S	U	U
H10 (PART OF S10) ⁵	HVAC UNIT	82 ³	O	S	U	U
H11 (PART OF S10) ⁵	HVAC UNIT	95 ³	O	S	U	U
H7 (PART OF S10) ⁵	HVAC UNIT	96 ³	O	S	U	U
H15 (PART OF S10) ⁵	HVAC UNIT	82 ³	O	S	U	U
S3 (S3)	PROCESS VENT/STACK	117 ³	O	S	U	S
S4 (S4)	PROCESS VENT/STACK	106 ³	O	S	U	S
CCCOMP	CONDENSING COIL COMPRESSOR	101 ⁴	O	S	U	B
CCFAN	CONDENSING COIL FAN	117 ⁴	O	S	U	B
TRUCKBLOW	BLOWER ON TANKER TRUCK	122 ^{2, 3}	O	T ²	U	U
TRUCK MOVEMENT	SHIPPING / TANKER TRUCK	101 ³	O	S	U	U
¹ See below for nomenclature						
² A 5 dB penalty has been applied to these sources as required by the MOE publication NPC 104, and included in the Sound Power Level provided in this table.						
³ Established through on-site noise measurements						
⁴ Established through manufacturer's noise data						
⁵ HVAC units were considered as one source in the ESDM report but separated for noise modeling.						
⁶ Existing noise control measures prior to mitigation						
⁷ Noise control measures after mitigation						

Noise Source Summary Table NomenclatureNotes

Sound Power Level (PWL) refers to the existing PWL prior to mitigation described in Section 7.0 (entitled “Proposed Noise Control Measures”), but accounts for existing, if any, noise control measures already implemented.

Although the presence of a barrier may reduce the SPL at a POR, it does not affect PWL of the source

Source Location

O – located/installed outside the building, including on the roof

I – located/installed inside the building

Sound Characteristics

S – Steady

Q – Quasi Steady Impulsive

I – Impulsive

B – Buzzing

T – Tonal

C – Cyclic

Existing Noise Control Measures

S – silencer, acoustic louver, muffler

A – acoustic lining, plenum

B – barrier, berm, screening (does not include shielding provided by any obstacle, such as the facility building)

L – lagging

E – acoustic enclosure

O – other

U – uncontrolled

Required Mitigation

S – silencer, acoustic louver, muffler

A – acoustic lining, plenum

B – barrier, berm, screening

L – lagging

E – acoustic enclosure

O – other

U – uncontrolled

Table 2: Performance Limit(s) Summary Table

Point of Reception ID	MOE Designation	Performance Limit (dBA)	
		Day-time	Evening/Night-time
POR1	Class 2	54	45
POR2	Class 2	52	45
POR3	Class 2	50	45
POR4	Class 2	52	45

Table 3: Point of Reception Noise Impact Table (Before Mitigation)

Source ID	POR1			POR2			POR3			POR4		
	Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)	
		Day	Evening / Night		Day	Evening / Night		Day	Evening / Night		Day	Evening / Night
H1	724	11	11	443	21	21	359	20	20	346	21	21
H2	718	6	6	467	16	16	372	15	15	360	15	15
H3	713	7	7	490	16	16	385	15	15	375	13	13
H4	709	13	13	518	17	17	402	17	17	393	14	14
S1	704	36	0	455	40	0	380	38	0	341	39	0
S2	686	34	0	494	37	0	410	36	0	359	37	0
S6	673	33	0	523	36	0	434	34	0	375	36	0
S7	659	36	0	475	39	0	427	38	0	325	40	0
S8	638	36	0	503	39	0	455	37	0	336	40	0
H17	661	33	33	443	38	38	417	37	37	298	41	41
H12	617	13	13	457	16	16	460	13	13	278	18	18
H13	612	13	13	479	15	15	470	13	13	295	15	15
H14	607	13	13	501	15	15	481	13	13	312	14	14
H5	610	14	14	521	16	16	486	13	13	333	15	15
S5	586	37	0	488	40	0	495	37	0	285	42	0
H6	583	13	13	523	15	15	509	13	13	318	15	15
H8	581	18	18	435	21	21	492	16	16	227	24	24

Source ID	POR1			POR2			POR3			POR4		
	Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)	
		Day	Evening / Night		Day	Evening / Night		Day	Evening / Night		Day	Evening / Night
H9	574	13	13	456	16	16	500	12	12	244	20	20
H10	568	13	13	478	16	16	509	12	12	263	19	19
H11	562	27	27	502	29	29	520	26	26	284	32	32
H7	555	26	26	527	27	27	533	22	22	305	31	31
H15	681	12	12	456	16	16	401	15	15	325	17	17
S3	560	48	0	455	51	0	513	47	0	231	55	0
S4	558	37	0	461	40	0	515	35	0	237	43	0
CCCOMP	683	25	0	446	35	0	397	34	0	318	36	0
CCFAN	683	42	0	446	52	0	397	51	0	318	53	0
TRUCKBLOW	543	51	0	523	35	0	542	29	0	293	39	0
SHIPPING TRUCK MOVEMENT	557	11	0	552	3	0	542	3	0	331	4	0
TANKER TRUCK MOVEMENT	557	12	0	552	3	0	542	3	0	331	6	0

Table 4: Acoustic Assessment Summary Table (Before Mitigation)

Point of Reception ID	Point of Reception Description	Time of Day	Sound Level at Point of Reception (dBA) (L _{eq})	Verified by Acoustic Audit (Yes/No)	Performance Limit (dBA) (L _{eq})	Compliance with Performance Limit (Yes/No)
POR1	Residential	Day	54	No	54	Yes
		Evening / Night	35	No	45	Yes
POR2	Residential	Day	55	No	52	No
		Evening / Night	39	No	45	Yes
POR3	Residential	Day	53	No	50	No
		Evening / Night	38	No	45	Yes
POR4	Residential	Day	58	No	52	No
		Evening / Night	42	No	45	Yes

Table 5: Barrier Description

Mitigation ID	Location	Construction Requirements	Approximate Height (m)	Approximate Length (m)	Distance From Source (m)
BR – 1 ¹	As shown on Figure 4	Minimum Surface Density = 20 kg/m ² Continuous surface without any gaps	2.2	3.0	1.0
BR – 2 ¹	As shown on Figure 4	Minimum Surface Density = 20 kg/m ² Continuous surface without any gaps	2.2	3.6	1.0
BR – 3 ¹	As shown on Figure 4	Minimum Surface Density = 20 kg/m ² Continuous surface without any gaps	2.2	2.9	1.0
¹ Refer to Figure 4					

Table 6: Silencer Minimum Dynamic Insertion Loss Performance (dB)

Source	Octave Band Centre Frequency (Hz)								
	31.5	63	125	250	500	1000	2000	4000	8000
S3 and S4	0	2	5	7	10	11	10	7	6

Table 7: Point of Reception Noise Impact Table (After Mitigation)

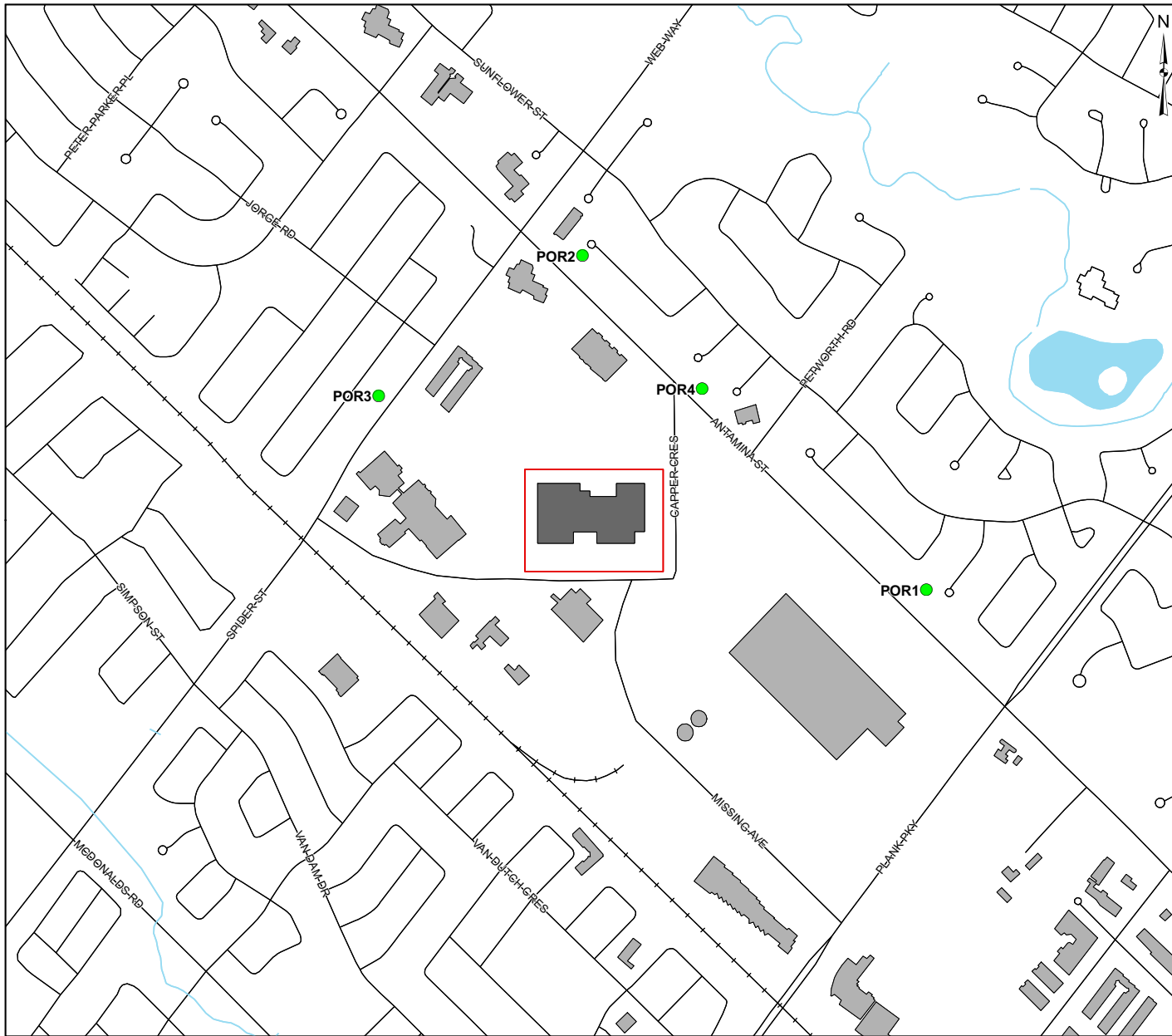
Source ID	POR1			POR2			POR3			POR4		
	Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)	
		Day	Evening / Night		Day	Evening / Night		Day	Evening / Night		Day	Evening / Night
H1	724	11	11	443	21	21	359	20	20	346	21	21
H2	718	6	6	467	16	16	372	15	15	360	15	15
H3	713	7	7	490	16	16	385	15	15	375	13	13
H4	709	13	13	518	17	17	402	17	17	393	14	14
S1	704	36	0	455	40	0	380	38	0	341	39	0
S2	686	34	0	494	37	0	410	36	0	359	37	0
S6	673	33	0	523	36	0	434	34	0	375	36	0
S7	659	36	0	475	39	0	427	38	0	325	40	0
S8	638	36	0	503	39	0	455	37	0	336	40	0
H17	661	33	33	443	38	38	417	37	37	298	41	41
H12	617	13	13	457	16	16	460	13	13	278	18	18
H13	612	13	13	479	15	15	470	12	12	295	15	15
H14	607	13	13	501	15	15	481	13	13	312	14	14
H5	610	14	14	521	16	16	486	13	13	333	15	15
S5	586	37	0	488	40	0	495	37	0	285	42	0
H6	583	13	13	523	15	15	509	13	13	318	15	15
H8	581	18	18	435	21	21	492	16	16	227	24	24
H9	574	13	13	456	16	16	500	12	12	244	20	20
H10	568	13	13	478	16	16	509	12	12	263	19	19

Source ID	POR1			POR2			POR3			POR4		
	Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)		Distance (m)	Sound Level (dBA)	
		Day	Evening / Night		Day	Evening / Night		Day	Evening / Night		Day	Evening / Night
H11	562	27	27	502	29	29	520	26	26	284	32	32
H7	555	26	26	527	27	27	533	22	22	305	31	31
H15	681	12	12	456	14	14	401	15	15	325	17	17
S3	560	40	0	455	43	0	513	38	0	231	46	0
S4	558	28	0	461	31	0	515	26	0	237	33	0
CCCOMP	683	19	0	446	23	0	397	24	0	318	26	0
CCFAN	683	38	0	446	42	0	397	44	0	318	46	0
TRUCKBLOW	543	51	0	523	35	0	542	29	0	293	39	0
SHIPPING TRUCK MOVEMENT	557	11	0	552	3	0	542	3	0	331	4	0
TANKER TRUCK MOVEMENT	557	12	0	552	3	0	542	3	0	331	6	0

Table 8: Acoustic Assessment Summary Table (After Mitigation)

Point of Reception ID	Point of Reception Description	Time of Day	Sound Level at Point of Reception (dBA) (L _{eq})	Verified by Acoustic Audit (Yes/No)	Performance Limit (dBA) (L _{eq})	Compliance with Performance Limit (Yes/No)
POR1	Residential	Day	52	No	54	Yes
		Evening / Night	35	No	45	Yes
POR2	Residential	Day	50	No	52	Yes
		Evening / Night	39	No	45	Yes
POR3	Residential	Day	48	No	50	Yes
		Evening / Night	38	No	45	Yes
POR4	Residential	Day	52	No	52	Yes
		Evening / Night	42	No	45	Yes

FIGURES



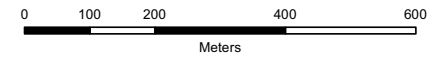
LEGEND

- Noise Receptor
- Road
- Railways
- Watercourse
- Waterbody
- Building Footprint
- Property Boundary



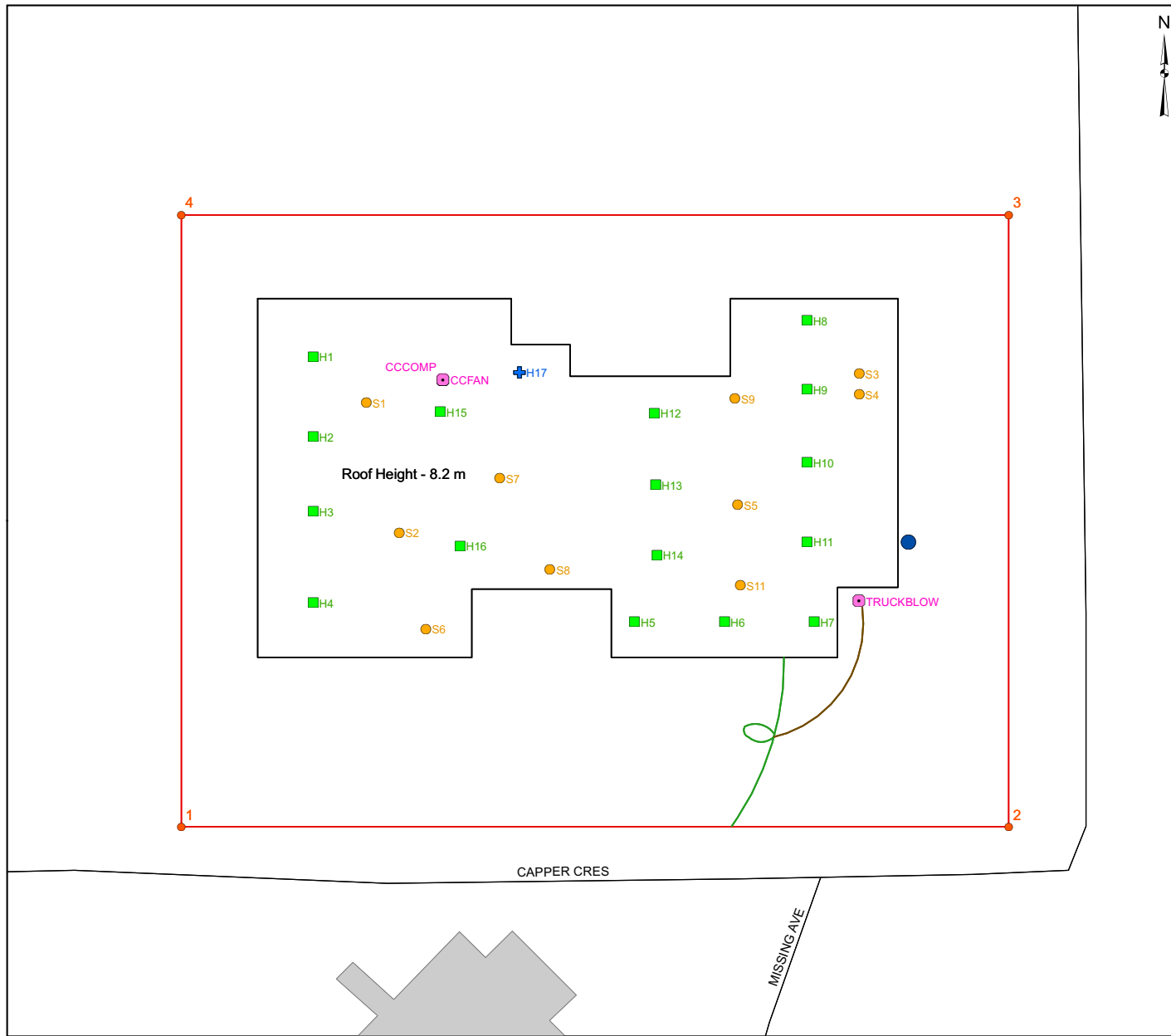
REFERENCE

Produced by P.E.S. Stacks Inc under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT		ACOUSTIC ASSESSMENT REPORT ACME INC., ACME OTHERTOWN PLANT			
TITLE		SCALED AREA LOCATION PLAN			
	PROJECT No: 08-112-0108		SCALE 1:7,500		Ver. 1.0
	DESIGN	PRM	01 Jan. 2008		
	GIS	PRM	14 Oct. 2008		
	CHECK	KD	14 Oct. 2008		
	REVIEW	AC	14 Oct. 2008		

FIGURE 1



LEGEND

- Silo
- Process Vent / Stack
- HVAC Stack
- + Boiler Stack
- Other
- Shipping Truck to Receiving
- Shipping Truck to Silo
- Watercourse
- Road
- Waterbody
- Building Footprint
- Site Location
- Property Boundary

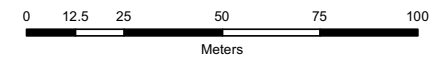
PROPERTY LINE COORDINATES

- 1 - 595528, 4841476
- 2 - 595783, 4841476
- 3 - 595783, 4841664
- 4 - 595528, 4841664



REFERENCE

Produced by P.E.S. Stacks Inc under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT		ACOUSTIC ASSESSMENT REPORT ACME INC., ACME OTHERTOWN PLANT			
TITLE		SITE LAYOUT PLAN			
	PROJECT No. 08-112-0108		SCALE 1:1,250		Ver. 1.0
	DESIGN	PRM	01 Jan. 2008	FIGURE: 2	
	GIS	PRM	11 Sep. 2008		
	CHECK	KD	11 Sep. 2008		
	REVIEW	MR	11 Sep. 2008		



LEGEND

- Noise Receptor
- Railways
- Watercourse
- Road
- Waterbody
- Site Location
- Property Boundary

Predicted Noise Level (dBA) @ 1.5m Height

- > 90.0
- 85.0 - 90.0
- 80.0 - 85.0
- 75.0 - 80.0
- 70.0 - 75.0
- 65.0 - 70.0
- 60.0 - 65.0
- 55.0 - 60.0
- 50.0 - 55.0
- 45.0 - 50.0
- 40.0 - 45.0
- 35.0 - 40.0
- < 35.0

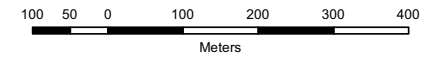
NOTE

Contour calculation height does not always match point(s) of reception height. See Table 1 for POR descriptions.



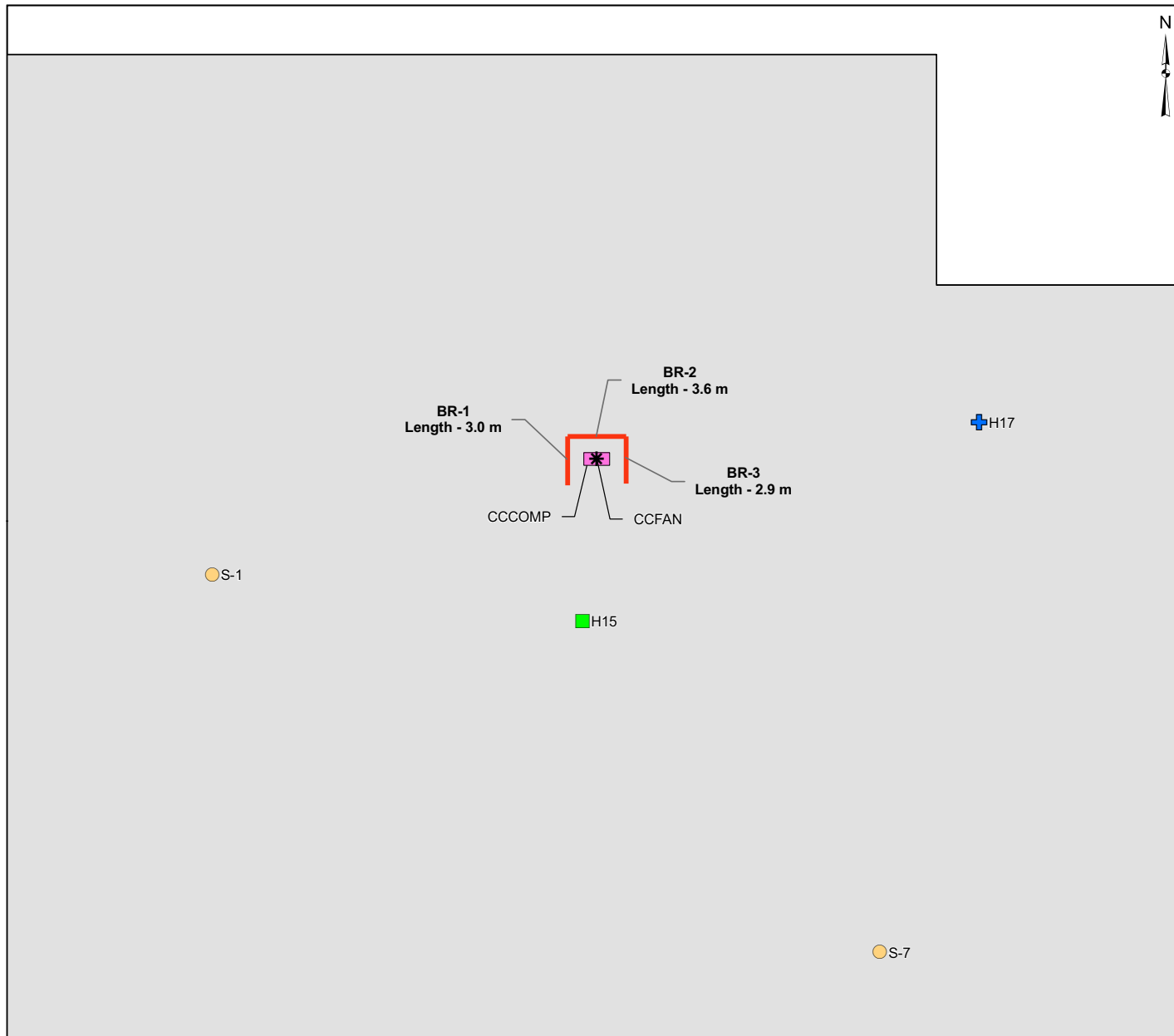
REFERENCE

Produced by P.E.S. Stacks Inc under licence from Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT		ACOUSTIC ASSESSMENT REPORT ACME INC., ACME OTHERTOWN PLANT		
TITLE		PREDICTION RESULTS (BEFORE MITIGATION)		
	PROJECT No.	08-112-0108	SCALE	1:6,500
	DESIGN	PRM 01 Jan. 2006	Ver.	1.0
	GIS	PRM 14 Oct. 2008		
	CHECK	KD 14 Oct. 2008		
	REVIEW	MR 14 Oct. 2008		

FIGURE 3



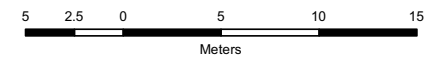
LEGEND

- CCCOMP
- CCFAN
- Process Vent / Stack
- HVAC Stack
- Boiler Stack
- Noise Mitigation Barrier
- Site Location



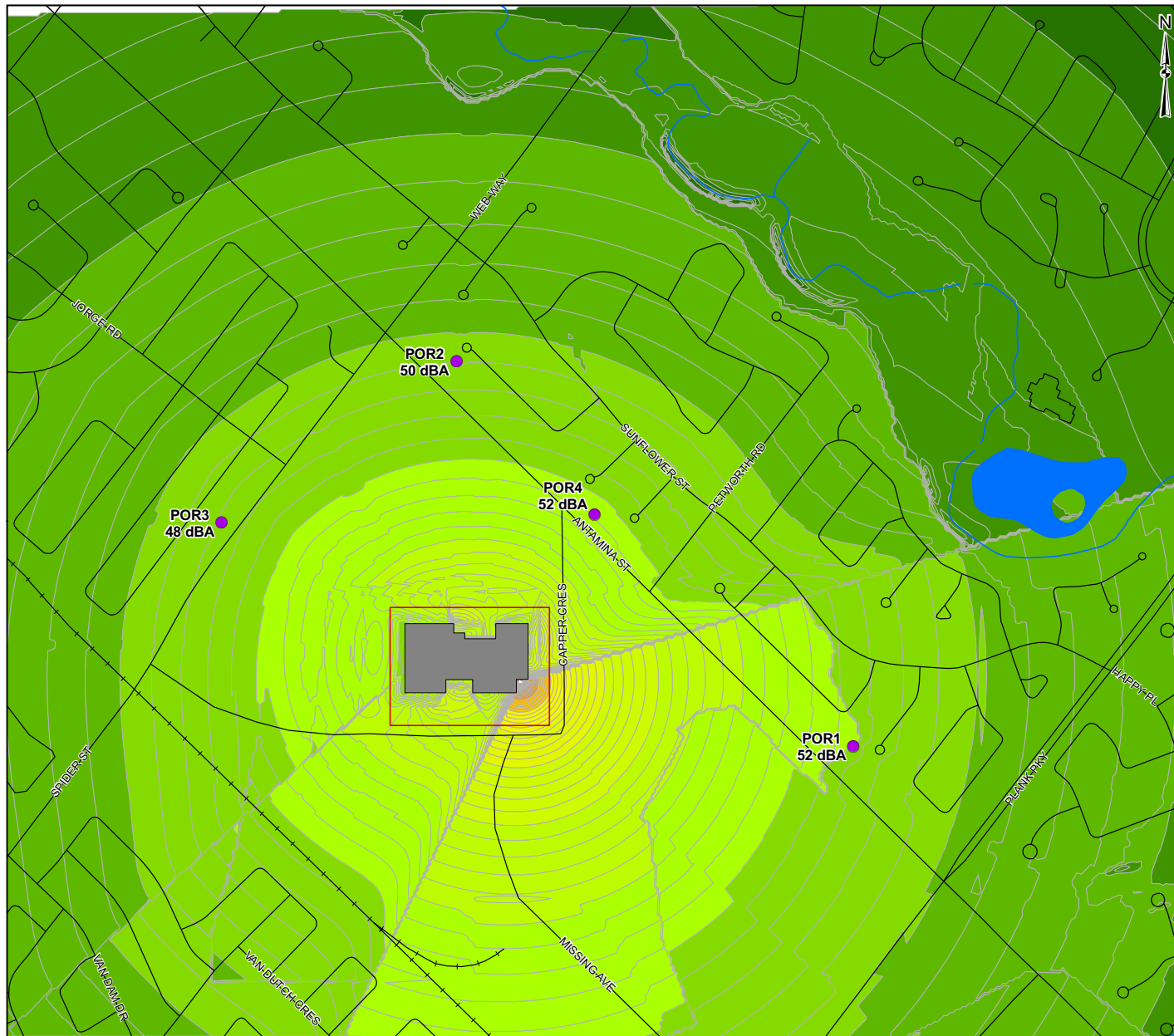
REFERENCE

Produced by P.E.S. Stacks Inc under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT		ACOUSTIC ASSESSMENT ACME INC., ACME OTHERTOWN PLANT			
TITLE		MITIGATION MEASURE - BARRIERS			
		PROJECT No: 08-112-0108		SCALE: 1:250	Ver: 1.0
		DESIGN	PRM	01 Jan. 2008	
		GIS	PRM	10 Oct. 2008	
		CHECK	KD	10 Oct. 2008	
		REVIEW	MR	10 Oct. 2008	

FIGURE: 4



LEGEND

- Noise Receptor
- Railways
- Watercourse
- Road
- Waterbody
- Site Location
- Property Boundary

Predicted Noise Level (dBA) @ 1.5m Height

- > 90.0
- 85.0 - 90.0
- 80.0 - 85.0
- 75.0 - 80.0
- 70.0 - 75.0
- 65.0 - 70.0
- 60.0 - 65.0
- 55.0 - 60.0
- 50.0 - 55.0
- 45.0 - 50.0
- 40.0 - 45.0
- 35.0 - 40.0
- < 35.0

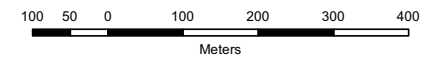
NOTE

Contour calculation height does not always match point(s) of reception height. See Table 1 for POR descriptions.



REFERENCE

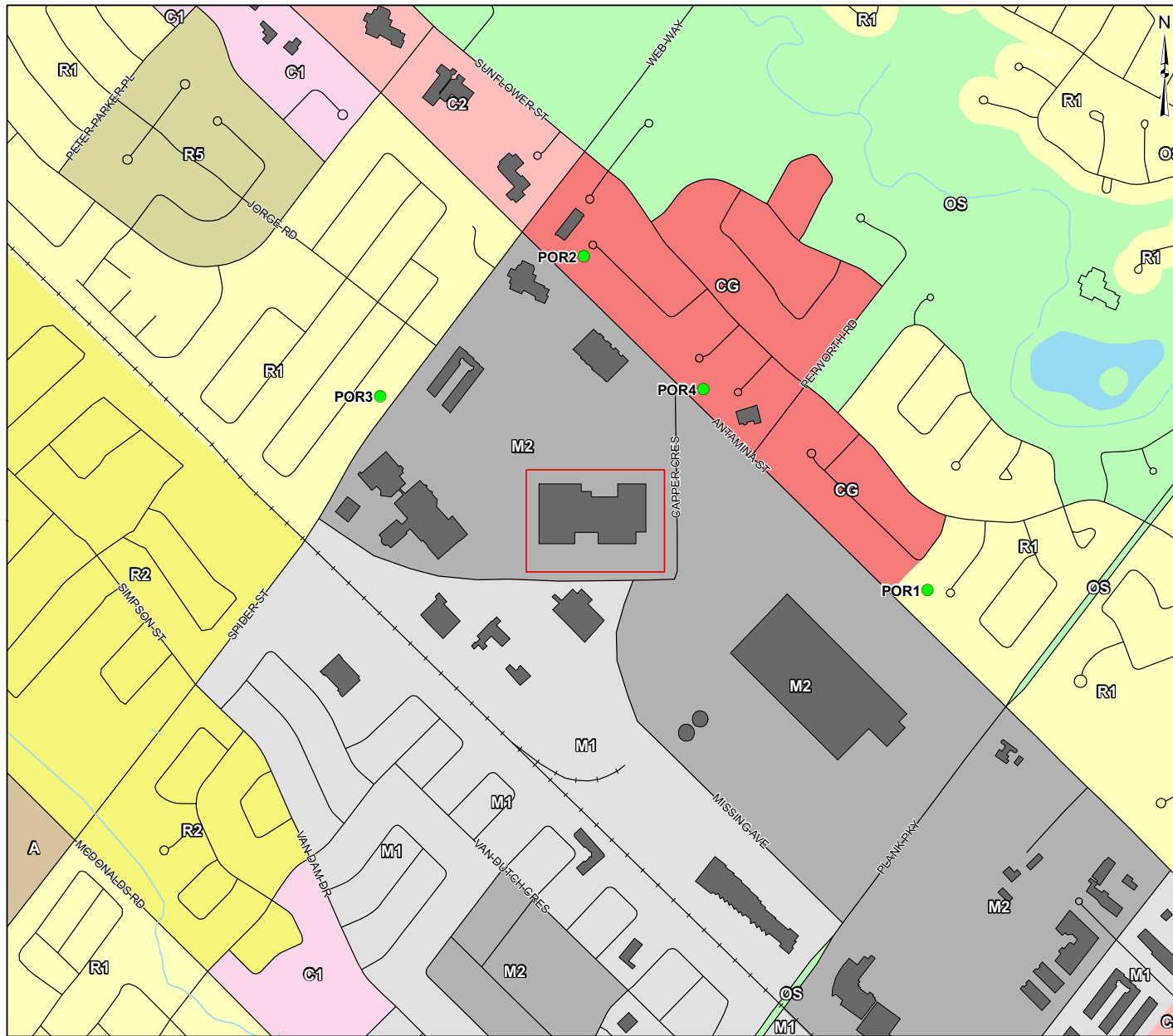
Produced by P.E.S. Stacks Inc under licence from Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT		ACOUSTIC ASSESSMENT ACME INC., ACME OTHERTOWN PLANT		
TITLE		PREDICTION RESULTS (AFTER MITIGATION)		
	PROJECT No.	08-112-0108	SCALE	1:6,500
	DESIGN	PRM 01 Jan. 2006	Ver.	1.0
	GIS	PRM 14 Oct. 2008		
	CHECK	KD 14 Oct. 2008		
	REVIEW	MR 14 Oct. 2008		

FIGURE: 5

APPENDIX A



LEGEND

- Noise Receptor
- Railways
- Watercourse
- Road
- Waterbody
- Building Footprint
- Property Boundary

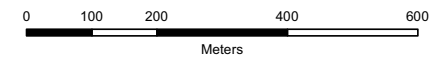
ZONING

- A Agricultural
- C1 Commercial - Low Density
- C2 Commercial - High Density
- CG Commercial - General Use
- M1 Industrial - Limited Outside Storage
- M2 Industrial - Outside Storage
- R1 Residential - Single Family
- R2 Residential - Mixed Use
- R5 Residential - High Density
- OS Open Space



REFERENCE

Produced by P.E.S. Stacks Inc under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2007



PROJECT		ACOUSTIC ASSESSMENT REPORT ACME INC., ACME OTHERTOWN PLANT		
TITLE		LAND USE ZONING DESIGNATION PLAN		
	PROJECT No.	08-1112-0108	SCALE	1:7,500
	DESIGN	PRM 01 Jan 2008	Ver.	1.0
	GIS	PRM 08 Oct 2008	APPENDIX A	
	CHECK	KD 08 Oct 2008		
	REVIEW	MR 08 Oct 2008		

APPENDIX B

LONG-TERM NOISE MONITORING AND WEATHER DATA

Date	Time	Leq	L(10)	L(90)
12-Sep	0:00	53	57	45
12-Sep	1:00	55	59	47
12-Sep	2:00	52	55	44
12-Sep	3:00	49	51	43
12-Sep	4:00	50	54	43
12-Sep	5:00	54	58	44
12-Sep	6:00	54	56	43
12-Sep	7:00	55	59	43
12-Sep	8:00	54	58	43
12-Sep	9:00	55	59	44
12-Sep	10:00	55	58	41
12-Sep	11:00	56	61	40
12-Sep	12:00	54	57	40
12-Sep	13:00	55	58	39
12-Sep	14:00	57	61	48
12-Sep	15:00	55	57	47
12-Sep	16:00	59	63	44
12-Sep	17:00	59	63	40
12-Sep	18:00	56	60	38
12-Sep	19:00	54	59	38
12-Sep	20:00	51	53	38
12-Sep	21:00	50	53	39
12-Sep	22:00	45	50	39
12-Sep	23:00	44	47	39
13-Sep	0:00	40	42	38
13-Sep	1:00	52	54	38
13-Sep	2:00	46	50	38
13-Sep	3:00	47	51	39
13-Sep	4:00	49	53	38
13-Sep	5:00	51	53	39
13-Sep	6:00	56	59	41
13-Sep	7:00	54	58	41
13-Sep	8:00	55	60	42
13-Sep	9:00	56	58	44
13-Sep	10:00	54	58	45
13-Sep	11:00	56	59	44
13-Sep	12:00	55	58	42
13-Sep	13:00	55	58	43
13-Sep	14:00	56	60	45
13-Sep	15:00	58	61	45
13-Sep	16:00	56	58	43
13-Sep	17:00	56	60	44
13-Sep	18:00	56	58	44
13-Sep	19:00	56	58	46
13-Sep	20:00	57	60	45
13-Sep	21:00	54	58	44
13-Sep	22:00	51	54	42
13-Sep	23:00	50	52	42
14-Sep	0:00	46	48	42
14-Sep	1:00	48	51	42
14-Sep	2:00	45	48	41
14-Sep	3:00	49	52	40
14-Sep	4:00	51	54	40
14-Sep	5:00	53	57	40
14-Sep	6:00	57	59	43
14-Sep	7:00	60	63	46
14-Sep	8:00	58	61	43
14-Sep	9:00	57	60	42
14-Sep	10:00	58	62	44
14-Sep	11:00	58	61	43
14-Sep	12:00	57	61	41

Date	Time	Leq	L(10)	L(90)
14-Sep	13:00	59	64	51
14-Sep	14:00	61	65	54
14-Sep	15:00	60	62	43
14-Sep	16:00	60	63	45
14-Sep	17:00	58	63	43
14-Sep	18:00	56	60	43
14-Sep	19:00	54	56	41
14-Sep	20:00	52	56	41
14-Sep	21:00	51	53	41
14-Sep	22:00	51	55	41
14-Sep	23:00	49	53	39
15-Sep	0:00	49	51	40
15-Sep	1:00	49	53	41
15-Sep	2:00	49	51	42
15-Sep	3:00	48	50	43
15-Sep	4:00	52	57	43
15-Sep	5:00	55	60	44
15-Sep	6:00	59	62	46
15-Sep	7:00	61	64	49
15-Sep	8:00	58	62	46
15-Sep	9:00	57	61	46
15-Sep	10:00	59	62	44
15-Sep	11:00	57	60	43
15-Sep	12:00	57	62	44
15-Sep	13:00	59	61	44
15-Sep	14:00	59	64	46
15-Sep	15:00	61	66	44
15-Sep	16:00	61	63	46
15-Sep	17:00	57	61	42
15-Sep	18:00	55	58	41
15-Sep	19:00	54	56	40
15-Sep	20:00	51	53	41
15-Sep	21:00	54	57	42
15-Sep	22:00	51	56	41
15-Sep	23:00	52	56	41
16-Sep	0:00	48	51	41
16-Sep	1:00	44	48	41
16-Sep	2:00	49	51	42
16-Sep	3:00	45	47	41
16-Sep	4:00	52	56	42
16-Sep	5:00	56	61	43
16-Sep	6:00	59	63	46
16-Sep	7:00	61	66	48
16-Sep	8:00	59	64	46
16-Sep	9:00	58	61	45
16-Sep	10:00	58	61	45
16-Sep	11:00	58	63	44
16-Sep	12:00	57	62	42
16-Sep	13:00	57	62	41
16-Sep	14:00	59	61	42
16-Sep	15:00	59	62	42
16-Sep	16:00	60	63	44
16-Sep	17:00	58	62	42
16-Sep	18:00	57	62	42
16-Sep	19:00	56	60	42
16-Sep	20:00	54	58	41
16-Sep	21:00	53	58	42
16-Sep	22:00	52	54	43
16-Sep	23:00	51	55	41
17-Sep	0:00	49	52	41
17-Sep	1:00	50	53	40

Date	Time	Leq	L(10)	L(90)
17-Sep	2:00	52	56	41
17-Sep	3:00	52	54	41
17-Sep	4:00	54	57	42
17-Sep	5:00	56	60	44
17-Sep	6:00	60	64	46
17-Sep	7:00	63	65	52
17-Sep	8:00	61	64	49
17-Sep	9:00	59	64	47
17-Sep	10:00	57	61	42
17-Sep	11:00	55	58	40
17-Sep	12:00	57	62	39
17-Sep	13:00	56	58	39
17-Sep	14:00	58	63	41
17-Sep	15:00	60	64	43
17-Sep	16:00	62	65	46
17-Sep	17:00	60	62	42
17-Sep	18:00	57	61	40
17-Sep	19:00	56	59	39
17-Sep	20:00	53	56	39
17-Sep	21:00	50	54	39
17-Sep	22:00	47	50	42
17-Sep	23:00	50	55	44
18-Sep	0:00	53	56	47
18-Sep	1:00	51	54	46
18-Sep	2:00	47	50	41
18-Sep	3:00	50	53	39
18-Sep	4:00	50	54	39
18-Sep	5:00	53	57	41
18-Sep	6:00	57	61	47
18-Sep	7:00	59	63	51
18-Sep	8:00	61	63	50
18-Sep	9:00	59	64	46
18-Sep	10:00	57	61	45
18-Sep	11:00	58	61	45
18-Sep	12:00	58	61	46
18-Sep	13:00	58	62	46
18-Sep	14:00	58	61	47
18-Sep	15:00	58	62	48
18-Sep	16:00	57	61	48
18-Sep	17:00	56	61	48
18-Sep	18:00	55	59	47
18-Sep	19:00	55	60	47
18-Sep	20:00	56	59	50
18-Sep	21:00	57	60	49
18-Sep	22:00	55	59	48
19-Sep	0:00	53	55	48
19-Sep	1:00	52	56	47
19-Sep	2:00	54	57	48
19-Sep	3:00	56	60	47
19-Sep	4:00	51	56	46
19-Sep	5:00	54	58	47
19-Sep	6:00	56	58	49
19-Sep	7:00	55	59	47
19-Sep	8:00	56	58	48
19-Sep	9:00	58	61	49
19-Sep	10:00	56	59	48
19-Sep	11:00	55	59	48
19-Sep	12:00	57	61	47
19-Sep	13:00	54	58	46
19-Sep	14:00	54	57	46

Date	Time	Leq	L(10)	L(90)
19-Sep	15:00	54	58	47
19-Sep	16:00	55	59	47
19-Sep	17:00	54	59	46
19-Sep	18:00	56	58	50
19-Sep	19:00	55	58	50
19-Sep	20:00	53	56	47
19-Sep	21:00	55	57	47
19-Sep	22:00	54	58	46
19-Sep	23:00	51	56	45
20-Sep	0:00	50	55	45
20-Sep	1:00	51	54	46
20-Sep	2:00	49	51	44
20-Sep	3:00	46	50	44
20-Sep	4:00	48	52	44
20-Sep	5:00	50	52	45
20-Sep	6:00	53	58	45
20-Sep	7:00	54	57	46
20-Sep	8:00	54	57	46
20-Sep	9:00	55	59	47
20-Sep	10:00	54	57	45
20-Sep	11:00	56	59	43
20-Sep	12:00	57	59	43
20-Sep	13:00	57	62	45
20-Sep	14:00	57	59	46
20-Sep	15:00	57	60	46
20-Sep	16:00	57	62	46
20-Sep	17:00	55	59	44
20-Sep	18:00	55	60	43
20-Sep	19:00	54	58	43
20-Sep	20:00	53	57	42
20-Sep	21:00	51	53	42
20-Sep	22:00	53	56	42
20-Sep	23:00	53	58	44
21-Sep	0:00	51	54	42
21-Sep	1:00	51	54	43
21-Sep	2:00	52	56	44
21-Sep	3:00	52	54	44
21-Sep	4:00	54	56	44
21-Sep	5:00	54	59	43
21-Sep	6:00	58	63	42
21-Sep	7:00	61	65	44
21-Sep	8:00	59	63	43
21-Sep	9:00	59	63	41
21-Sep	10:00	55	59	39
21-Sep	11:00	57	60	38
21-Sep	12:00	56	58	38
21-Sep	13:00	56	60	38
21-Sep	14:00	58	62	39
21-Sep	15:00	59	61	41
21-Sep	16:00	60	65	45
21-Sep	17:00	59	64	42
21-Sep	18:00	57	59	40
21-Sep	19:00	56	59	39
21-Sep	20:00	54	58	39
21-Sep	21:00	50	55	38
21-Sep	22:00	51	55	39
21-Sep	23:00	49	52	40
22-Sep	0:00	43	46	39
22-Sep	1:00	47	50	39
22-Sep	2:00	40	44	39
22-Sep	3:00	45	48	39

Date	Time	Leq	L(10)	L(90)
22-Sep	4:00	52	55	40
22-Sep	5:00	53	57	42
22-Sep	6:00	58	60	45
22-Sep	7:00	59	63	48
22-Sep	8:00	57	61	44
22-Sep	9:00	56	59	43
22-Sep	10:00	56	58	41
22-Sep	11:00	54	59	40
22-Sep	12:00	55	58	40
22-Sep	13:00	54	59	38
22-Sep	14:00	55	59	38
22-Sep	15:00	58	60	41
22-Sep	16:00	60	64	45
22-Sep	17:00	60	63	41
22-Sep	18:00	57	61	39
22-Sep	19:00	54	57	38
22-Sep	20:00	52	57	38
22-Sep	21:00	52	55	43
22-Sep	22:00	52	56	42
22-Sep	23:00	53	58	38
23-Sep	0:00	44	49	37
23-Sep	1:00	46	49	37
23-Sep	2:00	46	49	37
23-Sep	3:00	50	53	38
23-Sep	4:00	51	54	38
23-Sep	5:00	56	59	39
23-Sep	6:00	60	65	42
23-Sep	7:00	61	66	44
23-Sep	8:00	59	64	41
23-Sep	9:00	56	60	44
23-Sep	10:00	54	58	45
23-Sep	11:00	56	60	44
23-Sep	12:00	55	59	42
23-Sep	13:00	55	58	43
23-Sep	14:00	56	61	45
23-Sep	15:00	58	62	45
23-Sep	16:00	56	59	43
23-Sep	17:00	56	60	44
23-Sep	18:00	55	59	44
23-Sep	19:00	55	60	43
23-Sep	20:00	54	58	43
23-Sep	21:00	53	58	42
23-Sep	22:00	51	56	42
23-Sep	23:00	53	58	42
24-Sep	0:00	53	56	44
24-Sep	1:00	49	52	41

Date	Time	Leq	L(10)	L(90)
24-Sep	2:00	50	52	40
24-Sep	3:00	52	55	41
24-Sep	4:00	52	56	41
24-Sep	5:00	54	57	42
24-Sep	6:00	56	59	44
24-Sep	7:00	60	65	46
24-Sep	8:00	63	66	52
24-Sep	9:00	61	63	49
24-Sep	10:00	59	62	47
24-Sep	11:00	57	60	42
24-Sep	12:00	55	59	40
24-Sep	13:00	57	59	39
24-Sep	14:00	56	60	39
24-Sep	15:00	58	61	41
24-Sep	16:00	60	63	43
24-Sep	17:00	62	65	46
24-Sep	18:00	60	62	42
24-Sep	19:00	57	60	40
24-Sep	20:00	56	58	39
24-Sep	21:00	53	58	39
24-Sep	22:00	50	53	39
24-Sep	23:00	47	50	42
25-Sep	0:00	50	53	44
25-Sep	1:00	53	56	47
25-Sep	2:00	51	53	46
25-Sep	3:00	47	50	41
25-Sep	4:00	50	52	39
25-Sep	5:00	50	54	39
25-Sep	6:00	53	57	41
25-Sep	7:00	57	60	47
25-Sep	8:00	59	63	51
25-Sep	9:00	61	63	50
25-Sep	10:00	59	61	46
25-Sep	11:00	57	61	45
25-Sep	12:00	58	61	45
25-Sep	13:00	58	61	45
25-Sep	14:00	58	60	46
25-Sep	15:00	58	62	46
25-Sep	16:00	58	63	47
25-Sep	17:00	58	62	48
25-Sep	18:00	57	61	48
25-Sep	19:00	56	59	48
25-Sep	20:00	55	57	47
25-Sep	21:00	55	58	47
25-Sep	22:00	56	60	50
25-Sep	23:00	57	61	49

Date : Date of monitoring interval

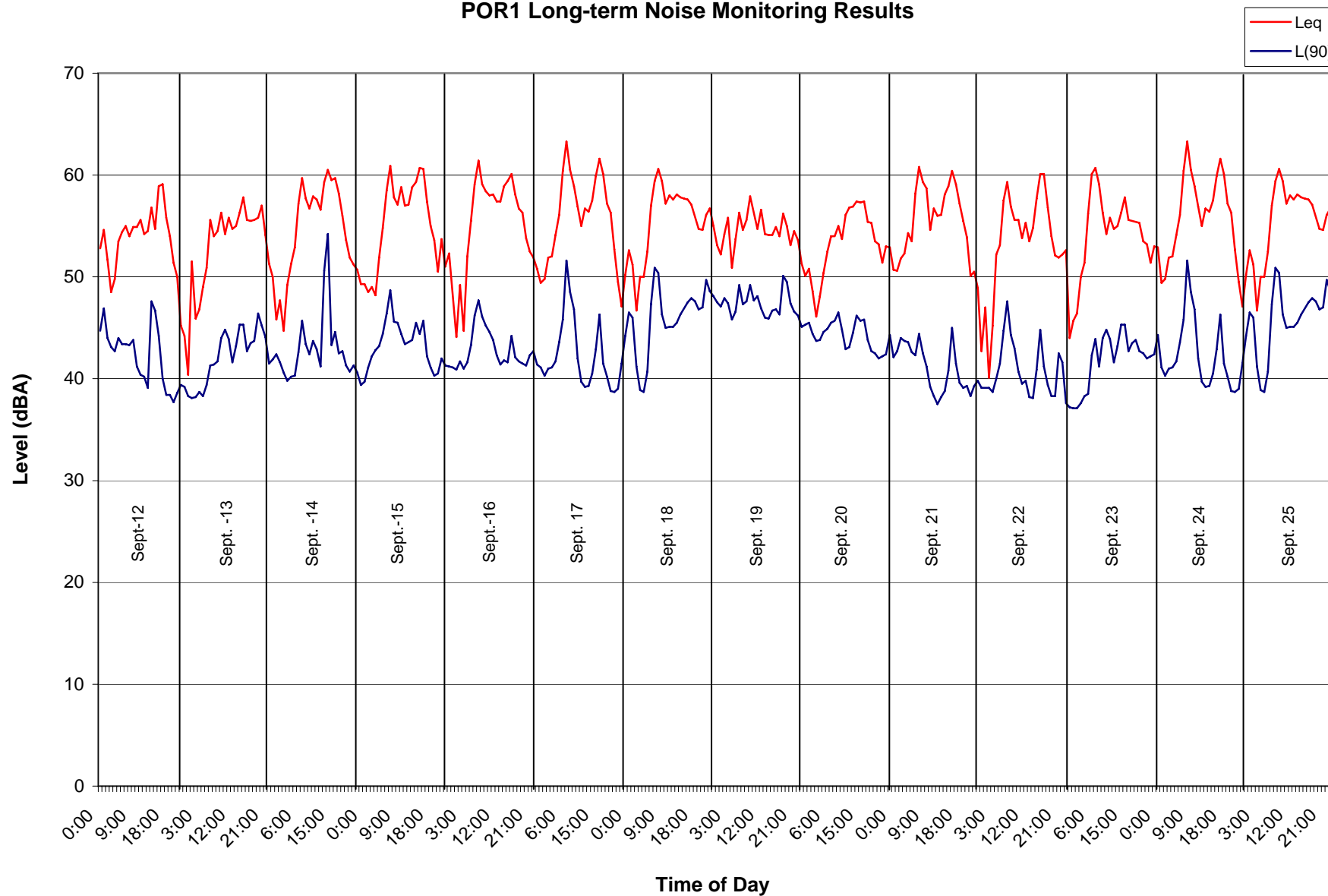
Time: Time of monitoring interval

Leq: The equivalent noise level during the monitoring interval (dBA)

L(10): The noise level that was exceeded 10% of the time during the monitoring interval (dBA)

L(90): The noise level that was exceeded 90% of the time during the monitoring interval (dBA)

POR1 Long-term Noise Monitoring Results



Station Name Othertown Weather Station
 Province ONTARIO
 Easting 17 597635
 Northin 4844059
 Elevation 235
 Climate Identifier 5550420
 WMO Identifier 12345
 TC Identifier YOT

All times are specified in Local Standard Time (LST). Add 1 hour to adjust for Daylight Saving Time where and when it is observed.

Legend

M Missing
 E Estimated
 NA Not Available

Year	Month	Day	Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10's deg)	Wind Spd (km/h)	Visibility (km)	Stn Press (kPa)	Weather
2008	9	9	0:00	8.1	5	78	10	10	24.1	100.29	Mainly Clear
2008	9	9	1:00	8.4	5	64	10	5	24.1	100.39	Mainly Clear
2008	9	9	2:00	8.3	5.5	58	13	7	24.1	100.49	Clear
2008	9	9	3:00	8.8	5.5	61	11	8	24.1	100.6	Clear
2008	9	9	4:00	9.9	5.5	64	14	7	24.1	100.7	Clear
2008	9	9	5:00	9.3	5.5	59	17	5	24.1	100.71	Clear
2008	9	9	6:00	9.2	9.7	58	15	8	24.1	100.76	Clear
2008	9	9	7:00	9.2	10.1	53	12	9	19.3	100.79	Clear
2008	9	9	8:00	10.0	10.5	53	15	10	16.1	100.81	Clear
2008	9	9	9:00	10.7	11.8	51	14	8	24.1	100.78	Mainly Clear
2008	9	9	10:00	10.8	11.6	47	11	6	24.1	100.76	Clear
2008	9	9	11:00	10.7	11.5	40	10	7	24.1	100.71	Clear
2008	9	9	12:00	11.2	8.4	34	12	9	24.1	100.65	Clear
2008	9	9	13:00	11.7	5.3	33	13	7	24.1	100.64	Clear
2008	9	9	14:00	12.9	1.8	29	15	5	24.1	100.65	Clear
2008	9	9	15:00	13.4	0.4	29	14	5	24.1	100.65	Clear
2008	9	9	16:00	14.4	-1	35	13	6	24.1	100.69	Clear
2008	9	9	17:00	14.1	-1.7	40	10	4	24.1	100.69	Clear
2008	9	9	18:00	14.1	-2.8	48	10	9	24.1	100.68	Clear
2008	9	9	19:00	10.9	-5	52	13	9	24.1	100.69	Clear
2008	9	9	20:00	12.5	-6.1	56	18	6	24.1	100.72	Clear
2008	9	9	21:00	12.1	-7.6	64	21	7	24.1	100.72	Clear
2008	9	9	22:00	13.4	-6	64	27	6	24.1	100.68	Clear
2008	9	9	23:00	11.8	-5.8	66	32	7	24.1	100.63	Clear

Year	Month	Day	Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10's deg)	Wind Spd (km/h)	Visibility (km)	Stn Press (kPa)	Weather
2008	9	12	0:00	7	-5.3	58	2	4	24.1	99.38	Cloudy
2008	9	12	1:00	8.9	-7	45	8	6	24.1	99.31	Cloudy
2008	9	12	2:00	8.9	-6.4	47	5	4	24.1	99.2	Cloudy
2008	9	12	3:00	7.4	-1.8	74	13	4	16.1	99.05	Rain
2008	9	12	4:00	7.2	0.1	86	36	7	16.1	98.96	Rain
2008	9	12	5:00	7.5	0.7	88	33	4	12.9	98.95	Rain
2008	9	12	6:00	6.9	1.1	94	5	9	3.6	98.98	Snow
2008	9	12	7:00	6.1	1.1	100	5	11	3.6	98.84	Rain,Fog
2008	9	12	8:00	6.5	1.5	100	6	11	4	98.73	Rain,Fog
2008	9	12	9:00	6.9	1.9	100	7	9	4.8	98.68	Rain,Fog
2008	9	12	10:00	7.2	2.2	100	5	17	8	98.59	Rain,Fog
2008	9	12	11:00	8	3	100	7	15	9.7	98.48	Rain,Fog
2008	9	12	12:00	7.9	2.8	99	7	17	12.9	98.41	Rain
2008	9	12	13:00	8.3	2.8	97	6	15	16.1	98.36	Cloudy
2008	9	12	14:00	8.4	2.9	97	5	15	19.3	98.33	Cloudy
2008	9	12	15:00	8.4	2.7	95	2	17	19.3	98.32	Cloudy
2008	9	12	16:00	8	2.3	95	2	15	19.3	98.35	Cloudy
2008	9	12	17:00	8.3	2.4	94	2	11	24.1	98.41	Cloudy
2008	9	12	18:00	8.3	2.4	94	3	11	24.1	98.39	Cloudy
2008	9	12	19:00	8.2	1.9	91	2	9	24.1	98.39	Cloudy
2008	9	12	20:00	8.1	1.8	91	36	7	24.1	98.49	Cloudy

Year	Month	Day	Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10's deg)	Wind Spd (km/h)	Visibility (km)	Stn Press (kPa)	Weather
2008	9	12	21:00	8.2	2.1	92	33	7	24.1	98.58	Cloudy
2008	9	12	22:00	8.4	2.1	91	32	7	24.1	98.59	Cloudy
2008	9	12	23:00	8.1	2.1	93	31	7	24.1	98.63	Cloudy
2008	9	13	0:00	8.2	2.2	93	29	4	24.1	98.67	Cloudy
2008	9	13	1:00	8.2	2	92	28	6	24.1	98.73	Cloudy
2008	9	13	2:00	6.9	1.1	94	30	6	24.1	98.75	Mainly Clear
2008	9	13	3:00	4.8	-0.4	99	31	4	24.1	98.85	Clear
2008	9	13	4:00	5.5	0	96	27	4	24.1	98.92	Clear
2008	9	13	5:00	4	-1.1	99	0	0	24.1	99.02	Mainly Clear
2008	9	13	6:00	4.2	-1.2	97	0	0	24.1	99.12	Mostly Cloudy
2008	9	13	7:00	5.3	0.1	99	0	0	24.1	99.18	Mainly Clear
2008	9	13	8:00	8.3	1.2	86	28	4	24.1	99.29	Clear
2008	9	13	9:00	11.9	2	71	0	0	24.1	99.39	Clear
2008	9	13	10:00	14	1.5	59	25	4	24.1	99.43	Clear
2008	9	13	11:00	15.3	0.7	51	23	9	24.1	99.47	Mainly Clear
2008	9	13	12:00	16.4	-1.4	41	26	13	24.1	99.49	Mainly Clear
2008	9	13	13:00	16.4	1.1	49	20	9	24.1	99.47	Mainly Clear
2008	9	13	14:00	16.9	1	47	20	7	24.1	99.42	Mainly Clear
2008	9	13	15:00	16.8	1.2	48	22	13	24.1	99.41	Mostly Cloudy
2008	9	13	16:00	16.4	2.2	53	15	15	24.1	99.44	Mostly Cloudy
2008	9	13	17:00	15.7	3.1	59	20	13	24.1	99.48	Mostly Cloudy
2008	9	13	18:00	15	2.9	61	18	13	24.1	99.54	Mostly Cloudy
2008	9	13	19:00	13.9	2.4	64	17	13	24.1	99.57	Mainly Clear
2008	9	13	20:00	12.9	2.5	69	17	9	12.9	99.66	Clear
2008	9	13	21:00	11.4	2	73	11	6	16.1	99.72	Clear
2008	9	13	22:00	9.1	2.1	87	10	6	16.1	99.78	Clear
2008	9	13	23:00	8.1	1.5	89	6	4	16.1	99.78	Clear
2008	9	14	0:00	7.1	0.9	92	36	4	16.1	99.79	Clear
2008	9	14	1:00	5.7	0.1	96	0	0	16.1	99.78	Clear
2008	9	14	2:00	5.7	-0.2	94	0	0	16.1	99.74	Clear
2008	9	14	3:00	4.8	-1.1	94	0	0	19.3	99.77	Clear
2008	9	14	4:00	4.4	-1.3	95	36	4	19.3	99.78	Clear
2008	9	14	5:00	4.2	-1.7	94	1	4	19.3	99.83	Clear
2008	9	14	6:00	4.7	-1.9	89	35	4	24.1	99.85	Clear
2008	9	14	7:00	6.8	-0.5	85	7	6	24.1	99.95	Clear
2008	9	14	8:00	11.1	-0.7	62	9	15	24.1	99.99	Clear
2008	9	14	9:00	14.4	-0.5	50	11	19	24.1	100	Clear
2008	9	14	10:00	15.3	-3.9	37	11	19	24.1	100	Clear
2008	9	14	11:00	16.8	-2.4	37	11	20	24.1	99.97	Mainly Clear
2008	9	14	12:00	17.5	0	42	11	22	24.1	99.92	Mainly Clear
2008	9	14	13:00	18.3	1.6	45	12	28	24.1	99.89	Mainly Clear
2008	9	14	14:00	17.8	-1.3	38	12	28	24.1	99.87	Mainly Clear
2008	9	14	15:00	17.8	-1.9	36	11	26	24.1	99.83	Mainly Clear
2008	9	14	16:00	17.4	-3.2	34	10	22	24.1	99.78	Mainly Clear
2008	9	14	17:00	16.5	-3.3	35	10	24	24.1	99.71	Mainly Clear
2008	9	14	18:00	16.1	-2.3	39	10	13	24.1	99.68	Mostly Cloudy
2008	9	14	19:00	15.2	-1.9	43	10	20	24.1	99.65	Mostly Cloudy
2008	9	14	20:00	14.2	-1.4	47	10	20	24.1	99.67	Mainly Clear
2008	9	14	21:00	13.9	-0.6	51	10	17	24.1	99.68	Clear
2008	9	14	22:00	14	0.5	55	10	17	24.1	99.66	Clear
2008	9	14	23:00	13.5	1.1	60	9	24	24.1	99.61	Clear
2008	9	15	0:00	12.9	2	66	10	22	24.1	99.6	Clear
2008	9	15	1:00	12	2.3	72	10	15	24.1	99.62	Clear
2008	9	15	2:00	11	2.4	78	10	15	24.1	99.59	Clear
2008	9	15	3:00	10.3	2.4	82	11	11	24.1	99.58	Clear
2008	9	15	4:00	9.7	2.5	86	10	15	24.1	99.64	Clear
2008	9	15	5:00	9.4	2.5	87	11	15	24.1	99.65	Clear
2008	9	15	6:00	9	2.4	89	10	15	24.1	99.7	Clear
2008	9	15	7:00	9.9	2.7	86	10	15	24.1	99.71	Clear
2008	9	15	8:00	11.1	2.8	79	11	28	24.1	99.71	Clear
2008	9	15	9:00	12	2.9	75	11	26	24.1	99.71	Mainly Clear
2008	9	15	10:00	12.6	3	73	12	22	24.1	99.7	Mostly Cloudy
2008	9	15	11:00	13.9	3.8	70	11	32	24.1	99.67	Mainly Clear

Year	Month	Day	Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10's deg)	Wind Spd (km/h)	Visibility (km)	Stn Press (kPa)	Weather
2008	9	15	12:00	14.2	3.7	68	11	24	24.1	99.58	Mainly Clear
2008	9	15	13:00	16.2	4.9	65	9	24	24.1	99.45	Mainly Clear
2008	9	15	14:00	16.4	5.2	66	10	20	24.1	99.54	Mainly Clear
2008	9	15	15:00	16.4	5	65	11	22	24.1	99.47	Mostly Cloudy
2008	9	15	16:00	16.8	5.2	64	10	28	24.1	99.38	Mostly Cloudy
2008	9	15	17:00	16.8	5	63	10	24	24.1	99.34	Mostly Cloudy
2008	9	15	18:00	16.9	5	63	11	22	24.1	99.38	Mostly Cloudy
2008	9	15	19:00	15.9	5	67	11	19	24.1	99.36	Mainly Clear
2008	9	15	20:00	15	5	71	11	17	24.1	99.28	Mainly Clear
2008	9	15	21:00	13.2	4.7	79	11	13	24.1	99.32	Mainly Clear
2008	9	15	22:00	12	4.5	84	11	6	24.1	99.33	Clear
2008	9	15	23:00	11.5	4.6	88	9	6	24.1	99.32	Mainly Clear
2008	9	16	0:00	14.1	5.5	78	17	7	24.1	99.4	Mostly Cloudy
2008	9	16	1:00	13.5	5.1	79	21	6	24.1	99.52	Mostly Cloudy
2008	9	16	2:00	12.7	4.9	82	19	9	19.3	99.48	Mainly Clear
2008	9	16	3:00	12.9	5.4	84	20	11	19.3	99.49	Cloudy
2008	9	16	4:00	12.7	5.3	85	21	11	19.3	99.54	Mainly Clear
2008	9	16	5:00	11.8	5.1	89	21	7	16.1	99.63	Mainly Clear
2008	9	16	6:00	11.2	5.1	93	19	4	19.3	99.67	Mostly Cloudy
2008	9	16	7:00	11.8	5.5	91	18	4	12.9	99.68	Cloudy
2008	9	16	8:00	13.3	6	85	23	9	11.3	99.74	Mostly Cloudy
2008	9	16	9:00	13.9	5.7	80	21	9	9.7	99.76	Haze
2008	9	16	10:00	14.9	5.4	74	24	9	9.7	99.85	Haze
2008	9	16	11:00	16.4	2.9	56	24	7	11.3	99.89	Mostly Cloudy
2008	9	16	12:00	17.5	2.4	50	28	6	16.1	99.85	Mostly Cloudy
2008	9	16	13:00	18.5	2.5	47	36	7	19.3	99.8	Mostly Cloudy
2008	9	16	14:00	20.3	2.4	42	0	0	19.3	99.74	Mostly Cloudy
2008	9	16	15:00	21.5	3.5	42	13	13	12.9	99.72	Mostly Cloudy
2008	9	16	16:00	20.2	4.7	49	15	13	12.9	99.73	Mostly Cloudy
2008	9	16	17:00	20	3.6	46	11	13	24.1	99.73	Mostly Cloudy
2008	9	16	18:00	19.6	4	49	9	9	24.1	99.67	Mainly Clear
2008	9	16	19:00	15.4	6.3	76	12	13	19.3	99.66	Mainly Clear
2008	9	16	20:00	13.4	5.8	84	10	9	19.3	99.67	Mainly Clear
2008	9	16	21:00	13.4	6.2	86	10	7	19.3	99.65	Mainly Clear
2008	9	16	22:00	13.6	6.4	86	7	4	16.1	99.59	Mostly Cloudy
2008	9	16	23:00	14.1	6.6	84	9	4	16.1	99.49	Cloudy
2008	9	17	0:00	15.2	7.1	81	10	15	19.3	99.42	Cloudy
2008	9	17	1:00	14.8	6.6	80	12	13	19.3	99.32	Cloudy
2008	9	17	2:00	13.4	6.1	85	11	13	19.3	99.22	Cloudy
2008	9	17	3:00	12.6	5.9	89	12	9	16.1	99.27	Mostly Cloudy
2008	9	17	4:00	12.5	5.8	89	12	9	19.3	99.24	Mostly Cloudy
2008	9	17	5:00	11.9	5.5	91	12	6	19.3	99.16	Mainly Clear
2008	9	17	6:00	11.7	5.4	91	12	11	19.3	99.1	Mainly Clear
2008	9	17	7:00	12.8	6	88	11	9	19.3	99.05	Cloudy
2008	9	17	8:00	13	7	93	13	9	9.7	99.12	Thunderstorms,Rain Showers,Fog
2008	9	17	9:00	13.1	8.1	100	14	11	12.9	99	Rain Showers
2008	9	17	10:00	14.9	9.2	95	18	19	16.1	98.96	Cloudy
2008	9	17	11:00	17.6	11	90	19	22	16.1	98.9	Cloudy
2008	9	17	12:00	20.7	10.4	71	19	32	19.3	98.82	Cloudy
2008	9	17	13:00	21.8	10.7	67	20	22	24.1	98.8	Cloudy
2008	9	17	14:00	23	9	56	25	22	24.1	98.83	Mostly Cloudy
2008	9	17	15:00	21.9	6.9	52	27	35	24.1	98.97	Mainly Clear
2008	9	17	16:00	19.2	5	54	27	24	24.1	99.15	Mainly Clear
2008	9	17	17:00	17	4.5	60	27	26	24.1	99.28	Mostly Cloudy
2008	9	17	18:00	14.7	3	63	28	28	24.1	99.41	Mostly Cloudy
2008	9	17	19:00	13.8	2.9	66	28	19	24.1	99.41	Mostly Cloudy
2008	9	17	20:00	12.7	1.8	66	28	26	24.1	99.55	Mostly Cloudy
2008	9	17	21:00	12.3	1.8	68	27	20	24.1	99.7	Mostly Cloudy
2008	9	17	22:00	11.8	1.3	68	29	22	24.1	99.72	Mostly Cloudy
2008	9	17	23:00	11.7	1.4	69	28	24	24.1	99.73	Mostly Cloudy
2008	9	18	0:00	11.2	1	69	29	22	24.1	99.76	Mostly Cloudy
2008	9	18	1:00	10.4	1	73	30	15	24.1	99.8	Mostly Cloudy
2008	9	18	2:00	9.5	0.4	75	30	20	24.1	99.84	Mostly Cloudy

Year	Month	Day	Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10's deg)	Wind Spd (km/h)	Visibility (km)	Stn Press (kPa)	Weather
2008	9	18	3:00	8.5	0.7	82	32	13	24.1	99.9	Mostly Cloudy
2008	9	18	4:00	8	-0.8	76	30	17	24.1	99.96	Mostly Cloudy
2008	9	18	5:00	7.2	-1.4	77	33	17	24.1	100	Mainly Clear
2008	9	18	6:00	6.8	-1.6	78	32	22	24.1	100.07	Mainly Clear
2008	9	18	7:00	7.2	-1.2	78	33	17	24.1	100.13	Mainly Clear
2008	9	18	8:00	8.3	-1.2	72	33	22	24.1	100.17	Mostly Cloudy
2008	9	18	9:00	9.4	-0.2	72	36	17	24.1	100.17	Mostly Cloudy
2008	9	18	10:00	9.8	-0.3	70	36	13	24.1	100.17	Mainly Clear
2008	9	18	11:00	11.5	0.4	65	2	7	24.1	100.15	Mainly Clear
2008	9	18	12:00	13.3	1.3	61	34	11	24.1	100.1	Mainly Clear
2008	9	18	13:00	14.6	1.5	57	33	9	24.1	100.02	Mainly Clear
2008	9	18	14:00	15.5	-0.1	48	36	17	24.1	99.93	Mostly Cloudy
2008	9	18	15:00	16	0.3	48	3	9	24.1	99.9	Mostly Cloudy
2008	9	18	16:00	15.7	-0.8	45	34	15	24.1	99.87	Cloudy
2008	9	18	17:00	15.2	0	49	36	9	24.1	99.92	Cloudy
2008	9	18	18:00	14.3	0.4	54	4	17	24.1	99.88	Cloudy
2008	9	18	19:00	13	-0.5	55	6	11	24.1	99.77	Cloudy
2008	9	18	20:00	12.3	-0.2	59	3	13	24.1	99.72	Cloudy
2008	9	18	21:00	12.2	-0.3	59	3	11	24.1	99.73	Cloudy
2008	9	18	22:00	11.8	-0.4	60	3	11	24.1	99.65	Cloudy
2008	9	18	23:00	11.9	-0.2	61	5	13	24.1	99.56	Rain
2008	9	19	0:00	11.5	0.7	66	10	13	24.1	99.61	Rain
2008	9	19	1:00	10.6	0.6	70	8	17	16.1	99.6	Rain
2008	9	19	2:00	9.1	1.2	81	9	20	12.9	99.52	Rain
2008	9	19	3:00	7.9	1.6	91	8	22	11.3	99.37	Rain
2008	9	19	4:00	7.4	1.8	96	9	19	9.7	99.28	Rain
2008	9	19	5:00	7.3	1.8	96	9	22	9.7	99.19	Rain,Fog
2008	9	19	6:00	7.3	2	98	10	26	8	99.11	Rain,Fog
2008	9	19	7:00	7	2	100	10	30	9.7	99.05	Moderate Rain,Fog
2008	9	19	8:00	7	2	100	9	33	9.7	98.83	Rain,Fog
2008	9	19	9:00	7.3	2.3	100	10	28	9.7	98.68	Rain,Fog
2008	9	19	10:00	7.9	2.9	100	10	33	12.9	98.58	Rain
2008	9	19	11:00	8.3	3.3	100	10	22	9.7	98.41	Rain,Fog
2008	9	19	12:00	8.7	3.7	100	11	24	4.8	98.34	Drizzle,Fog
2008	9	19	13:00	9.4	4.4	100	10	20	4.8	98.31	Drizzle,Fog
2008	9	19	14:00	10	5	100	9	19	6.4	98.19	Fog
2008	9	19	15:00	10.5	5.5	100	9	15	9.7	98.09	Fog
2008	9	19	16:00	10.5	5.5	100	9	13	9.7	98.04	Fog
2008	9	19	17:00	10.3	5.3	100	8	13	9.7	97.93	Fog
2008	9	19	18:00	10.4	5.4	100	9	9	12.9	97.9	Cloudy
2008	9	19	19:00	10	5	100	8	4	4.8	97.91	Fog
2008	9	19	20:00	9.8	4.8	100	6	9	4.8	97.86	Fog
2008	9	19	21:00	9.5	4.5	100	6	11	4.8	97.69	Fog
2008	9	19	22:00	9.7	4.7	100	10	6	4.8	97.65	Thunderstorms,Rain Showers,Fog
2008	9	19	23:00	9.8	4.8	100	16	7	4	97.6	Moderate Rain Showers,Fog
2008	9	20	0:00	9.8	4.8	100	33	30	8	97.68	Rain,Fog
2008	9	20	1:00	8.7	3.7	100	4	9	9.7	97.62	Fog
2008	9	20	2:00	8.7	3.7	100	9	7	11.3	97.53	Cloudy
2008	9	20	3:00	9.1	3.9	99	19	7	11.3	97.59	Cloudy
2008	9	20	4:00	9.5	4.5	100	19	9	2.4	97.7	Fog
2008	9	20	5:00	8.6	3.6	100	20	7	0.4	97.73	Fog
2008	9	20	6:00	8.6	3.6	100	17	4	0.4	97.74	Fog
2008	9	20	7:00	8.8	3.8	100	15	4	0.8	97.72	Fog
2008	9	20	8:00	9.3	4.3	100	15	6	3.6	97.73	Rain,Fog
2008	9	20	9:00	9.7	4.7	100	12	11	2.8	97.75	Rain,Fog
2008	9	20	10:00	9.4	4.4	100	12	7	4	97.77	Rain,Fog
2008	9	20	11:00	9.6	4.6	100	15	7	4.8	97.77	Rain,Fog
2008	9	20	12:00	10.2	5.2	100	9	7	4.8	97.78	Rain,Fog
2008	9	20	13:00	10.7	5.7	100	8	7	4.8	97.79	Rain,Fog
2008	9	20	14:00	13.3	8.2	99	17	6	8	97.79	Rain,Fog
2008	9	20	15:00	12.7	6.7	93	28	13	12.9	97.82	Rain Showers
2008	9	20	16:00	13	7	93	23	13	12.9	97.87	Rain Showers
2008	9	20	17:00	11.5	6.3	99	34	7	19.3	97.94	Rain Showers

Year	Month	Day	Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10's deg)	Wind Spd (km/h)	Visibility (km)	Stn Press (kPa)	Weather
2008	9	20	18:00	11.6	6.6	100	36	6	6.4	98.02	Rain Showers,Fog
2008	9	20	19:00	10.9	5.9	100	36	9	4.8	98.11	Rain Showers,Fog
2008	9	20	20:00	10.4	5.4	100	36	17	6.4	98.2	Rain,Fog
2008	9	20	21:00	7.8	2.4	97	4	19	9.7	98.33	Rain,Fog
2008	9	20	22:00	7.8	2.4	97	2	15	16.1	98.36	Rain
2008	9	20	23:00	7.5	1.9	96	2	13	24.1	98.39	Rain
2008	9	21	0:00	7.4	1.8	96	2	15	24.1	98.42	Rain
2008	9	21	1:00	7	1	93	3	19	24.1	98.45	Rain
2008	9	21	2:00	6.6	0.8	94	3	20	16.1	98.46	Snow
2008	9	21	3:00	6.4	-0.2	89	2	15	24.1	98.48	Snow
2008	9	21	4:00	6.3	-0.7	87	1	13	24.1	98.51	Snow
2008	9	21	5:00	6.1	-1.3	84	36	17	24.1	98.53	Mostly Cloudy
2008	9	21	6:00	5.4	-2.6	80	1	19	24.1	98.62	Mostly Cloudy
2008	9	21	7:00	5.2	-3.1	78	1	26	24.1	98.71	Mainly Clear
2008	9	21	8:00	6.1	-3.1	74	36	22	24.1	98.81	Mainly Clear
2008	9	21	9:00	7.1	-3.8	65	2	20	24.1	98.85	Mainly Clear
2008	9	21	10:00	8.4	-4.1	58	36	19	24.1	98.9	Mostly Cloudy
2008	9	21	11:00	9.2	-3.7	56	36	24	24.1	98.92	Mostly Cloudy
2008	9	21	12:00	9.1	-3.5	58	35	26	24.1	98.91	Mostly Cloudy
2008	9	21	13:00	9.2	-3.5	57	35	24	24.1	98.9	Mostly Cloudy
2008	9	21	14:00	10.7	-3.2	53	36	28	24.1	98.92	Mainly Clear
2008	9	21	15:00	11	-3.1	52	1	26	24.1	98.92	Mostly Cloudy
2008	9	21	16:00	10.8	-4.7	47	36	22	24.1	98.95	Mainly Clear
2008	9	21	17:00	11	-4.8	46	36	24	24.1	98.99	Mainly Clear
2008	9	21	18:00	10	-2.4	59	31	26	24.1	99.06	Mainly Clear
2008	9	21	19:00	8.6	-3.9	58	32	22	24.1	99.12	Mainly Clear
2008	9	21	20:00	8	-4.1	60	33	13	24.1	99.17	Mainly Clear
2008	9	21	21:00	7.5	-3.7	64	34	13	24.1	99.23	Mainly Clear
2008	9	21	22:00	7.2	-3.2	67	33	7	24.1	99.27	Mostly Cloudy
2008	9	21	23:00	7.5	-2.8	68	0	0	24.1	99.28	Mostly Cloudy
2008	9	22	0:00	8	-3	65	33	7	24.1	99.29	Mostly Cloudy
2008	9	22	1:00	8.2	-3.4	62	33	11	24.1	99.3	Mostly Cloudy
2008	9	22	2:00	8.1	-3.6	61	34	11	24.1	99.32	Mostly Cloudy
2008	9	22	3:00	7.7	-3.9	62	35	13	24.1	99.35	Mostly Cloudy
2008	9	22	4:00	7.6	-4	62	35	15	24.1	99.39	Mostly Cloudy
2008	9	22	5:00	6.7	-3.7	67	35	9	24.1	99.44	Mostly Cloudy
2008	9	22	6:00	6.2	-4.3	67	35	11	24.1	99.51	Mainly Clear
2008	9	22	7:00	7.1	-4.1	63	34	13	24.1	99.59	Mostly Cloudy
2008	9	22	8:00	8.4	-3.7	60	36	17	24.1	99.63	Mostly Cloudy
2008	9	22	9:00	10.2	-3.3	54	35	17	24.1	99.68	Mainly Clear
2008	9	22	10:00	11.4	-4.7	45	34	26	24.1	99.71	Mainly Clear
2008	9	22	11:00	11.9	-4.8	43	36	19	24.1	99.72	Mainly Clear
2008	9	22	12:00	13.7	-4.4	39	35	22	24.1	99.7	Mainly Clear
2008	9	22	13:00	13.9	-5.3	36	33	19	24.1	99.67	Mainly Clear
2008	9	22	14:00	14.6	-4.4	37	33	17	24.1	99.64	Mainly Clear
2008	9	22	15:00	14.4	-2.8	42	34	20	24.1	99.61	Mainly Clear
2008	9	22	16:00	13.6	-5	38	33	20	24.1	99.65	Mainly Clear
2008	9	22	17:00	13.1	-4.4	41	33	26	24.1	99.67	Mainly Clear
2008	9	22	18:00	11.7	-5.7	41	32	22	24.1	99.7	Clear
2008	9	22	19:00	10	-6.2	44	32	22	24.1	99.7	Clear
2008	9	22	20:00	8.7	-6.3	48	32	19	24.1	99.76	Clear
2008	9	22	21:00	8	-6.6	49	34	15	24.1	99.82	Clear
2008	9	22	22:00	7.4	-7	50	34	15	24.1	99.83	Clear
2008	9	22	23:00	7	-7.7	49	35	11	24.1	99.86	Clear
2008	9	23	0:00	6.8	-8.3	47	35	13	24.1	99.9	Clear
2008	9	23	1:00	6.5	-6.6	55	34	15	24.1	99.9	Clear
2008	9	23	2:00	6.1	-6	59	35	13	24.1	99.88	Clear
2008	9	23	3:00	6.1	-5.9	60	35	11	24.1	99.89	Clear
2008	9	23	4:00	5.5	-5.8	63	35	11	24.1	99.91	Clear
2008	9	23	5:00	5.2	-5.5	65	35	9	24.1	99.94	Clear
2008	9	23	6:00	4.2	-5.6	70	34	6	24.1	99.97	Clear
2008	9	23	7:00	7.7	-4.9	57	34	6	24.1	100.06	Clear
2008	9	23	8:00	10.1	-5.5	46	34	7	24.1	100.11	Clear

Year	Month	Day	Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10's deg)	Wind Spd (km/h)	Visibility (km)	Stn Press (kPa)	Weather
2008	9	23	9:00	12.3	-6.6	36	35	6	24.1	100.13	Clear
2008	9	23	10:00	13.4	-8.8	29	0	0	24.1	100.14	Clear
2008	9	23	11:00	15.1	-6.5	30	19	9	24.1	100.09	Mainly Clear
2008	9	23	12:00	15.4	-7.3	28	20	13	24.1	100.01	Clear
2008	9	23	13:00	16.1	-6.6	28	20	9	24.1	99.95	Clear
2008	9	23	14:00	16.7	-5.3	30	21	13	24.1	99.87	Mainly Clear
2008	9	23	15:00	15.9	-5.9	30	19	15	24.1	99.82	Mainly Clear
2008	9	23	16:00	17.2	-5.5	29	19	15	24.1	99.75	Mainly Clear
2008	9	23	17:00	16.9	-6.1	28	19	20	24.1	99.73	Mainly Clear
2008	9	23	18:00	15.4	-1.5	43	18	20	24.1	99.71	Mainly Clear
2008	9	23	19:00	13.7	-0.9	51	19	17	24.1	99.71	Mainly Clear
2008	9	23	20:00	12.7	-0.7	55	19	13	24.1	99.72	Mainly Clear
2008	9	23	21:00	11.9	0.4	63	19	9	24.1	99.74	Mainly Clear
2008	9	23	22:00	11.6	0.9	67	21	6	24.1	99.76	Mainly Clear
2008	9	23	23:00	12.7	-3.8	44	24	9	24.1	99.75	Mainly Clear
2008	9	24	0:00	11.5	-3.8	48	22	9	24.1	99.73	Mainly Clear
2008	9	24	1:00	10.1	-4.3	51	20	6	24.1	99.72	Mainly Clear
2008	9	24	2:00	9.4	-3.1	58	19	6	24.1	99.7	Mostly Cloudy
2008	9	24	3:00	8.8	-2.5	63	19	4	24.1	99.73	Mostly Cloudy
2008	9	24	4:00	8.9	-2.5	63	19	6	24.1	99.78	Mostly Cloudy
2008	9	24	5:00	8.6	-2.6	64	18	6	24.1	99.83	Mostly Cloudy
2008	9	24	6:00	7	-2.2	74	16	4	24.1	99.86	Mostly Cloudy
2008	9	24	7:00	9.1	0.4	77	0	0	24.1	99.92	Mostly Cloudy
2008	9	24	8:00	12.3	-0.9	56	22	7	24.1	99.94	Mostly Cloudy
2008	9	24	9:00	15.6	-1.5	43	22	17	24.1	99.92	Mostly Cloudy
2008	9	24	10:00	17	-2	38	20	17	24.1	99.86	Mainly Clear
2008	9	24	11:00	19.2	-0.6	36	20	22	24.1	99.8	Mostly Cloudy
2008	9	24	12:00	19.6	-0.5	35	19	24	24.1	99.73	Mainly Clear
2008	9	24	13:00	20.8	-0.9	32	17	24	24.1	99.65	Mainly Clear
2008	9	24	14:00	21.5	-1	30	19	32	24.1	99.57	Mainly Clear
2008	9	24	15:00	21.5	-1.5	29	18	26	24.1	99.52	Mainly Clear
2008	9	24	16:00	21.9	-2.2	27	19	26	24.1	99.45	Mainly Clear
2008	9	24	17:00	21.7	-2.8	26	19	20	24.1	99.45	Mainly Clear
2008	9	24	18:00	21.6	-3.6	25	21	20	24.1	99.43	Mainly Clear
2008	9	24	19:00	20	-5.2	24	18	9	24.1	99.4	Mainly Clear
2008	9	24	20:00	18.5	-3.4	31	18	13	24.1	99.37	Mainly Clear
2008	9	24	21:00	17.8	-3	33	18	7	24.1	99.42	Mainly Clear
2008	9	24	22:00	15.9	-2.2	40	16	7	24.1	99.46	Mainly Clear
2008	9	24	23:00	12.5	-1.1	54	8	7	24.1	99.47	Mainly Clear
2008	9	25	0:00	7.4	1.8	96	2	15	24.1	98.42	Mainly Clear
2008	9	25	1:00	7	1	93	3	19	24.1	98.45	Mainly Clear
2008	9	25	2:00	6.6	0.8	94	3	20	16.1	98.46	Mostly Cloudy
2008	9	25	3:00	6.4	-0.2	89	2	15	24.1	98.48	Mostly Cloudy
2008	9	25	4:00	6.3	-0.7	87	1	13	24.1	98.51	Mostly Cloudy
2008	9	25	5:00	6.1	-1.3	84	36	17	24.1	98.53	Mostly Cloudy
2008	9	25	6:00	5.4	-2.6	80	1	19	24.1	98.62	Mostly Cloudy
2008	9	25	7:00	5.2	-3.1	78	1	26	24.1	98.71	Mostly Cloudy
2008	9	25	8:00	6.1	-3.1	74	36	22	24.1	98.81	Mostly Cloudy
2008	9	25	9:00	7.1	-3.8	65	2	20	24.1	98.85	Mostly Cloudy
2008	9	25	10:00	8.4	-4.1	58	36	19	24.1	98.9	Mainly Clear
2008	9	25	11:00	9.2	-3.7	56	36	24	24.1	98.92	Mostly Cloudy
2008	9	25	12:00	9.1	-3.5	58	35	26	24.1	98.91	Mainly Clear
2008	9	25	13:00	9.2	-3.5	57	35	24	24.1	98.9	Mainly Clear
2008	9	25	14:00	10.7	-3.2	53	36	28	24.1	98.92	Mainly Clear
2008	9	25	15:00	11	-3.1	52	1	26	24.1	98.92	Mainly Clear
2008	9	25	16:00	10.8	-4.7	47	36	22	24.1	98.95	Mainly Clear
2008	9	25	17:00	11	-4.8	46	36	24	24.1	98.99	Mainly Clear
2008	9	25	18:00	10	-2.4	59	31	26	24.1	99.06	Mainly Clear
2008	9	25	19:00	8.6	-3.9	58	32	22	24.1	99.12	Mainly Clear
2008	9	25	20:00	8	-4.1	60	33	13	24.1	99.17	Mainly Clear
2008	9	25	21:00	7.5	-3.7	64	34	13	24.1	99.23	Mainly Clear
2008	9	25	22:00	7.2	-3.2	67	33	7	24.1	99.27	Mainly Clear
2008	9	25	23:00	7.5	-2.8	68	0	0	24.1	99.28	Mainly Clear

APPENDIX C

STAMSON CALCULATIONS AND ROAD TRAFFIC DATA

STAMSON 5.0 NORMAL REPORT Date: 29-09-2008 10:47:35
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: antastrt.te Time Period: 1 hours
 Description:

Road data, segment # 1:

 Car traffic volume : 90 veh/TimePeriod
 Medium truck volume : 5 veh/TimePeriod
 Heavy truck volume : 5 veh/TimePeriod
 Posted speed limit : 50 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1:

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 42.00 m
 Receiver height : 13.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1:

 Source height = 1.50 m

ROAD (0.00 + 52.30 + 0.00) = 52.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.30	58.88	0.00	-5.81	-0.77	0.00	0.00	0.00	52.30

Segment Leq : 52.30 dBA

Total Leq All Segments: 52.30 dBA

TOTAL Leq FROM ALL SOURCES: 52.30

9/9/2008

Hourly Traffic Count
1835 Antamina Street
Municipality: Othertown, Ontario

Date	Hour End	Vehicle type	Northbound	Southbound	Total
		CAR	49	48	97
Friday September 12, 2008	1:00	MED TRK	3	3	6
		LRG TRK	3	3	6
		Total:	55	54	109
		CAR	48	39	87
Friday September 12, 2008	2:00	MED TRK	3	3	5
		LRG TRK	3	3	5
		Total:	54	44	98
		CAR	20	20	40
Friday September 12, 2008	3:00	MED TRK	1	1	2
		LRG TRK	1	1	2
		Total:	22	22	44
		CAR	18	14	32
Friday September 12, 2008	4:00	MED TRK	1	1	2
		LRG TRK	0	0	0
		Total:	19	15	34
		CAR	39	45	84
Friday September 12, 2008	5:00	MED TRK	3	3	5
		LRG TRK	3	3	5
		Total:	44	50	94
		CAR	48	55	103
Friday September 12, 2008	6:00	MED TRK	3	4	7
		LRG TRK	3	4	7
		Total:	54	62	116
		CAR	46	58	104
Friday September 12, 2008	7:00	MED TRK	3	4	7
		LRG TRK	3	4	7
		Total:	52	65	117
		CAR	51	56	107
Friday September 12, 2008	8:00	MED TRK	3	4	7
		LRG TRK	3	4	7
		Total:	57	63	120
		CAR	48	54	102
Friday September 12, 2008	9:00	MED TRK	3	3	6
		LRG TRK	3	3	6
		Total:	54	60	114
		CAR	42	48	90
Friday September 12, 2008	10:00	MED TRK	3	2	5
		LRG TRK	2	3	5
		Total:	47	53	100
		CAR	51	51	102
Friday September 12, 2008	11:00	MED TRK	3	3	6
		LRG TRK	3	3	6
		Total:	57	57	114

Date	Hour End	Vehicle type	Northbound	Southbound	Total
		CAR	54	54	108
Friday September 12, 2008	12:00	MED TRK	4	3	7
		LRG TRK	4	3	7
		Total:	61	60	121
		CAR	55	54	109
Friday September 12, 2008	13:00	MED TRK	4	4	7
		LRG TRK	4	4	7
		Total:	62	61	123
		CAR	45	46	91
Friday September 12, 2008	14:00	MED TRK	3	3	6
		LRG TRK	3	3	6
		Total:	50	52	102
		CAR	48	47	95
Friday September 12, 2008	15:00	MED TRK	3	3	6
		LRG TRK	3	3	6
		Total:	54	53	107
		CAR	55	46	101
Friday September 12, 2008	16:00	MED TRK	4	3	7
		LRG TRK	4	3	7
		Total:	62	52	114
		CAR	55	48	103
Friday September 12, 2008	17:00	MED TRK	4	3	7
		LRG TRK	4	3	7
		Total:	62	54	116
		CAR	58	53	111
Friday September 12, 2008	18:00	MED TRK	4	3	7
		LRG TRK	4	3	7
		Total:	65	59	125
		CAR	60	54	114
Friday September 12, 2008	19:00	MED TRK	4	3	7
		LRG TRK	4	3	7
		Total:	67	61	128
		CAR	54	50	104
Friday September 12, 2008	20:00	MED TRK	3	3	6
		LRG TRK	3	3	6
		Total:	61	56	116
		CAR	56	51	107
Friday September 12, 2008	21:00	MED TRK	4	3	7
		LRG TRK	4	3	7
		Total:	63	58	121
		CAR	25	23	48
Friday September 12, 2008	22:00	MED TRK	1	1	2
		LRG TRK	0	0	0
		Total:	26	24	50
		CAR	48	41	89
Friday September 12, 2008	23:00	MED TRK	3	3	6
		LRG TRK	3	3	6
		Total:	54	46	101
		CAR	44	41	85
Friday September 12, 2008	24:00	MED TRK	3	3	6
		LRG TRK	3	3	6
		Total:	50	46	96

APPENDIX D

INSTRUMENTATION

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

VIRTe REAL TIME ANALYZER / S. L. M.

Manufactured By: Bobby Dog Corp.
Model No.:
Serial No.: 0182
Calibration Recall No.: C6270

Submitted by:

Customer: P.E.S. Stacks Inc.

Company:
Address:

The subject instrument was calibrated to the indicated specification using standards traceable to the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

Instrumental Calibration Laboratories Specification No. Bobby Dog 944 (see attached)

Upon receipt for Calibration, the instrument was found to be:

Within (X) see attached Report of Calibration

the tolerance of the indicated specification.

Instrumental Calibration Laboratories' calibration control system meets the following requirements, ISO 10012-1 MIL-STD- 45662A, ANSI/NCSL, Z540-1, IEC Guide 25, ISO 9001:2000 and ISO/IEC 17025:2005

Note: With this Certificate, Report of Calibration is included.

Calibration Date: 09 March 2008

Certificate No: C6270 -1

Approved by:


John Doe
Quality Manager

QA Doc. #1051 Rev. 2.0 10/1/01

Certificate Page 1 of 1


uncompromised calibration
456 Seven-Eight-Nine st Brampton, Ontario N3N 4O4 Canada
Instrumental Calibration Laboratories, Inc.

ISO 9001:2000
Registered Company

Calibration Traceable
To N. I. S. T.

Phone: (905) 555-0420



Instrumental Calibration Laboratories Inc.

Certificate of Calibration

for

MICROPHONE

Manufactured By: McPhones
Model No.: 377A60
Serial No.: 1022
Calibration Recall No.: C6270

Submitted by:

Customer:
Company: P.E.S. Stacks Inc
Address:

The subject instrument was calibrated to the indicated specification using standards traceable to the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

Instrumental Calibration Laboratories Specification No. 377A60 McP (see attached)

Upon receipt for Calibration, the instrument was found to be:

Within (X) see attached Report of Calibration

the tolerance of the indicated specification.

Instrumental Calibration Laboratories' calibration control system meets the following requirements, ISO 10012-1 MIL-STD- 45662A, ANSI/NCSL, Z540-1, IEC Guide 25, ISO 9001:2000 and ISO/IEC 17025:2005

Note: With this Certificate, Report of Calibration is included.

Calibration Date: 08 March 2008

Certificate No: C6270 -2

QA Doc. #1051 Rev. 2.0 10/1/01

Certificate Page 1 of 1

Approved by:


John Doe
Quality Manager

**Instrumental
Calibration
Laboratories, Inc.**
uncompromised calibration
456 Seven-Eight-Nine street Brampton, Ontario N3N 4O4 Canada

ISO 9001:2000
Registered Company

Calibration Traceable
To N. I. S. T.

Phone: (905) 555-0420



APPENDIX E
MEASUREMENT DATA

Name	H1	S1	S2	S6	S7	S8	H17	S5	H6
Distance of Measurement	6	5	5	7	7	3.5	5	4.5	5
	Leq-1	Leq-2	Leq-3	Leq-4	Leq-5	Leq-6	Leq-7	Leq-8	Leq-9
Frequency (Hz)									
25	60.7	63	69	73.3	75.1	76.3	70.1	61.8	53.1
31.5	60.4	69.4	71.2	74.6	77.6	77	68.7	66	50.6
40	60.7	73.8	75.6	67.1	73.9	71.4	67.3	63.2	52.7
50	62.8	66.6	70.2	68.4	73.7	74	70.8	65.9	49.8
63	61.9	67.5	67.9	69.6	75	75	71.1	71.6	50.1
80	58.7	74.3	71.1	70.1	74.2	71.4	69.8	70.7	51.4
100	56.8	73.3	72	72	74.8	73	66.4	72.6	54.2
125	59.9	73.3	72.1	71.5	81.6	79.5	66.7	72.9	58
160	59.7	73.9	74.9	71.8	76.8	76	69	75.8	54.5
200	57.5	74.6	75.2	73	75.3	78	68.7	75	55.6
250	58.7	76.2	77.9	72.1	71.3	77.2	69.9	79.5	60.4
315	58.7	78.7	74.4	72	74.7	77.2	68.4	75.1	56
400	58.7	78.3	72.4	71.9	70.2	80.2	68.6	75	54.6
500	55.0	71.1	72.9	64.5	68.9	77.2	66.7	79.4	51
630	53.1	69.4	69	65.3	68.4	77.7	67.7	70.3	50
800	52.0	70.7	69.3	64.2	66.9	74.7	67.5	72.7	49.4
1000	52.8	69	68	62.3	67.4	72.2	73.9	71.5	44.2
1250	51.6	66.9	65.8	60.8	65.1	69.3	67.2	66.6	47.4
1600	49.4	65.7	64.6	60.6	64.9	68	66.9	65.5	49
2000	49.2	65.8	62.7	58.6	63.3	66.5	68	63.9	48
2500	44.6	62.6	61.5	56.5	60.2	65	67	67.8	48.5
3150	44.1	61.7	59.7	55.4	59	63	69.4	62.3	46.5
4000	46.6	59.1	56.9	56.3	56.7	60.2	68.9	60.2	45.2
5000	45.0	58	53.5	52.2	56	61.2	68.5	56.7	43.1
6300	44.1	57	53.3	53	54.6	58.3	67.1	56.1	41
8000	40.0	56.7	52	49.3	49.3	55.8	65.7	54.2	40
10000	38.8	52	49.1	47.9	47	53.1	64.3	54.1	38.3
31.5	65	75	78	77	81	80	74	69	57
63	66	76	75	74	79	78	75	75	55
125	64	78	78	77	83	82	72	79	61
250	63	82	81	77	79	82	74	82	63
500	61	80	77	73	74	83	73	81	57
1000	57	74	73	67	71	77	75	76	52
2000	53	70	68	64	68	71	72	71	53
4000	50	65	62	60	62	66	74	65	50
8000	46	61	57	55	56	61	71	60	45
dBA	63	80	78	75	77	83	80	82	61
Correction Type	Distance	Distance	Distance	Distance	Distance	Distance	Distance	Distance	Distance
R=	6	5	5	7	7	3.5	5	4.5	5
Area=									
Correction for Power	23.5	25.0	25.0	27.9	27.9	21.9	25.0	24.1	22.0
PWL									
31.5	89	100	103	105	108	102	99	93	79
63	90	101	100	102	107	100	100	99	77
125	87	103	103	104	111	104	97	103	83
250	87	107	106	105	107	104	99	106	85
500	85	104	101	101	102	105	97	105	79
1000	80	99	98	95	99	99	100	100	74
2000	77	95	93	92	96	93	97	95	75
4000	74	90	87	88	90	88	99	89	72
8000	70	85	82	83	84	83	96	84	67
dBA	86	105	103	102	105	105	105	106	82

Name	H8	H9	H10	H11	H7	S3	S4	H15	TRUCKBLOW	Truck Movement
Distance of Measurement	5	5	5	5	5	3	5	5	25	15
	Leq-10	Leq-11	Leq-12	Leq-13	Leq-14	Leq-15	Leq-16	Leq-17	Leq-18	Leq-19
Frequency (Hz)										
25	58	53.1	57.5	68	66.1	90.7	63	57.5	60	72
31.5	58.7	50.6	59	63.1	63.6	89.6	69.4	59	59.4	66.6
40	60	52.7	59	65.8	65.7	91.6	71	59	66.3	68
50	61.1	49.8	54.2	63.9	62.8	88.6	66.5	54.2	62	65
63	65.5	50.1	59.5	66	63.1	89.2	67.5	59.5	78.4	73.8
80	66.3	51.4	62.6	67.7	64.4	91.8	69	62.6	61.4	68.2
100	67.1	54.2	63.1	72.7	67.2	93	73.3	63.1	65.8	66.4
125	65.9	58	64.2	69.1	70	93	73.3	64.2	58.3	65.7
160	61.4	54.5	61	66.5	67.5	96	73.9	61	68	64.3
200	58.5	55.6	57.3	68.5	68.6	93.5	74.6	57.3	68.4	63.7
250	61.6	58.4	57.6	69.4	70	92.9	76.2	57.6	67	61.4
315	62.9	55.6	55.9	69.2	64.6	92.4	78.7	55.9	63.4	59.4
400	59.8	53.3	53.9	68	65.6	91	78.3	53.9	64.9	59
500	56.6	51	52.5	68.3	63	88.8	73	52.5	65.5	59.1
630	54	51	49.5	66	63	87.1	69.4	49.5	63.6	61.1
800	52.2	49.4	49.5	65	62.4	86.1	70.7	49.5	75.2	61.8
1000	51.3	44.2	46.8	61.4	57.2	85	69	46.8	72.1	61.7
1250	52.9	47.4	45.6	60.8	60.4	83.4	66.9	45.6	72.6	60.1
1600	49.5	49	44.4	59.8	62	84	65.7	44.4	73	59.1
2000	47	48	43.2	57.9	61	83.1	65.8	43.2	70.8	57.6
2500	46	47	43.9	58	64	81.8	62.6	43.9	66.1	54.6
3150	45.1	45.5	41.5	56	63.5	79	62.7	41.5	66.7	53.4
4000	42.9	44.1	39.8	52.4	60	78.6	62.1	39.8	65.1	52
5000	41.4	43.1	37.1	51	57.1	77.7	61.8	37.1	66.1	51.2
6300	39	40	36.7	50	56.7	76.2	58.7	36.7	51.1	49.3
8000	38.5	39.5	35.3	47.6	55.8	71.5	57	35.3	56.6	46.1
10000	37.5	38.3	33.7	46	55	67	54	33.7	44.9	45.4
31.5	64	57	63	71	70	95	74	63	68	74
63	70	55	65	71	68	95	73	65	79	75
125	70	61	68	75	73	99	78	68	70	70
250	66	62	62	74	73	98	82	62	71	67
500	62	57	57	72	69	94	80	57	70	65
1000	57	52	52	68	65	90	74	52	78	66
2000	53	53	49	63	67	88	70	49	76	62
4000	48	49	45	58	66	83	67	45	71	57
8000	43	44	40	53	61	78	62	40	58	52
dBA	64	60	60	73	74	96	80	60	81	70
Correction Type	Distance	Distance	Distance	Distance	Distance	Distance	Distance	Distance	Distance	Distance
R=	5	5	5	5	5	3	5	5	25	15
Area=										
Correction for Power	22.0	22.0	22.0	22.0	22.0	20.5	25.0	22.0	35.9	31.5
PWL										
31.5	86	79	85	93	92	116	99	85	104	106
63	92	77	87	93	90	115	98	87	115	107
125	92	83	90	97	95	120	103	90	106	102
250	88	83	84	96	95	118	107	84	107	98
500	84	79	79	94	91	115	105	79	105	96
1000	79	74	74	90	87	110	99	74	114	98
2000	74	75	71	85	89	108	95	71	112	94
4000	70	71	67	80	88	104	92	67	107	89
8000	65	66	62	75	83	98	87	62	94	84
dBA	86	82	82	95	96	117	105	82	117	101

MANUFACTURER'S DATA

BEC COOLING COIL SYSTEM

Version: 7.1.4 NA
Product data correct as of: March 24, 2008
Project Name: ACME Othertown
Selection Name:
Project State/Province: Ontario
Project Country: Canada
Date: Oct08

Model: VT1-750-P **Intake Option: Intake Attenuation**
Number of Units: 1 **Internal Option: None**
No. of Fans/Unit: 1 **Discharge Option: Discharge Attenuation**
 Fan Type: Standard

Total Standard Fan Power per Unit: 25.00 HP
Fan Motor Alternative: Full Speed

SOUND POWER LEVELS ARE EXPRESSED IN DECIBELS, REFERENCE 1
PICOWATT. OCTAVE BAND 1 HAS A CENTRE FREQUENCY OF 63 HZ



Compressor

Sound Power (dB)		
Octave Band	Center Frequency (Hertz)	Lw
1	31.5	98
2	63	101
3	125	98
4	250	99
5	500	98
6	1000	95
7	2000	93
8	4000	92
9	8000	71

Fan

Sound Power (dB)		
Octave Band	Center Frequency (Hertz)	Lw
1	31.5	100
2	63	106
3	125	110
4	250	118
5	500	115
6	1000	113
7	2000	108
8	4000	102
9	8000	96

FISSION AIR HANDLING UNIT TECHNICAL DATA

Date Saved : 6/23/2008

JOB NAME	ACME Othertown	REP. OFFICE	HTC Eng (Toronto)
JOB DESCRIPTION	Rooftop HVAC installation	SALESPERSON	Bear Conditioner
MODEL NUMBER	CAH050GDAC	ENGINEER	BC
UNIT TAGGING	H02	VERSION	8.61

Unit configuration	Inline horizontal		
Drive (handing) location	Right		
	SUPPLY		RETURN / EXHAUST
Air volume	23600		s cfm
Altitude	0		ft
Turning loss	0.00		in WC.
External static	1.50		in WC.
Total static	2.98		in WC.
External H x W	80 x 120 (Not including base rails)		ins

CASING DETAILS	
Outer panel	Standard G90 galv steel (unpainted)
Liner	Galvanized steel (Unless noted per section)
Insulation	R-13 Injected Foam (Unless noted per section)
Frame	2 ins
Base	6" formed channel
Sound baffles	None (unless noted per section)
Tread Plate floor liner	None (unless noted per section)

1 MIXING BOX(62 ins)			SECTION 1
Drip pan	None	Drip side	-
	OUTSIDE AIR	RETURN AIR	
Length x Width	36.00 x 116.00	No opening	ins
Location	Top	-	
Dampers	UltraSeal Low Leak	None	
Actuation	-	-	
Rated cfm	23600	23600	cfm
Air pressure drop	0.08		in WC

FILTER DATA				
Type	Pleated (MERV 8)		Clean air press. drop	0.22 ins WC
Efficiency	70 %		Mean air press. drop	0.61 ins WC
Face velocity	313 fpm		Dirty air press. drop	1.00 ins WC
Face area	75.5 ft2		Access	Side
Air volume	23600 cfm			

BANK ARRANGEMENT		
No. of filters	Size H x W x D	
24	24.00 x 20.00 x 2.00	ins

DOOR DATA			
Door location	Drive side	Window size	None
Door width	28 ins	Light	None
Door opening	Outward		

SPECIAL			
Intersept Antimicrobial treatment			
Tread Plate floor liner	None		
Liner	(As casing details)		
Insulation	(As casing details)		
Sound baffles	None		
Special static pressure	-	ins WC	Filter Gauge None

VFD / STARTER / DISCONNECT DATA

Selection type	VFD	Vendor	Danoss
Auxiliary Control	None	Voltage	575
-	None		
Mounting	Door Side	H x W x D	22.05 x 12.03 x 11.39 ins
Enclosure	NEMA 1	Coil Voltage	N/A
Line Reactor	None	Hand Off Auto Switch	None
24V Ctrl Transformer	None	120V Ctl Transformer	None

NOTES

Supply fan performance is certified in accordance with the Central Station Air-Handling Unit Certification Program, which is based on ARI Standard 430.

As a standalone component, unit meets or exceeds requirements of ASHRAE 90.1 - 1999. The approving authority is responsible for compliance of multi-component building systems.

SHIPPING SECTION DETAILS

	Length (inches)	Weight (lb)	
Section 1	74	1979	
Section 2	68	2619	
Section 3	80	3454	
TOTALS	222.00 (Lower level total)	8052 (Entire unit weight)	

	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
UNIT SOUND POWER (PWL)	78	79	79	79	81	75	73	71	69

FISSION AIR HANDLING UNIT TECHNICAL DATA

Date Saved : 6/23/2008

JOB NAME	ACME Othertown	REP. OFFICE	HTC Eng (Toronto)
JOB DESCRIPTION	Rooftop HVAC installation	SALESPERSON	Bear Conditioner
MODEL NUMBER	CAH050GDAC	ENGINEER	BC
UNIT TAGGING	H03	VERSION	8.61

Unit configuration	Inline horizontal		
Drive (handing) location	Right		
	SUPPLY		RETURN / EXHAUST
Air volume	23600		s cfm
Altitude	0		ft
Turning loss	0.00		in WC.
External static	1.50		in WC.
Total static	2.98		in WC.
External H x W	80 x 120 (Not including base rails)		ins

CASING DETAILS	
Outer panel	Standard G90 galv steel (unpainted)
Liner	Galvanized steel (Unless noted per section)
Insulation	R-13 Injected Foam (Unless noted per section)
Frame	2 ins
Base	6" formed channel
Sound baffles	None (unless noted per section)
Tread Plate floor liner	None (unless noted per section)

1 MIXING BOX(62 ins)			SECTION 1
Drip pan	None	Drip side	-
	OUTSIDE AIR	RETURN AIR	
Length x Width	36.00 x 116.00	No opening	ins
Location	Top	-	
Dampers	UltraSeal Low Leak	None	
Actuation	-	-	
Rated cfm	23600	23600	cfm
Air pressure drop	0.08		in WC

FILTER DATA				
Type	Pleated (MERV 8)		Clean air press. drop	0.22 ins WC
Efficiency	70 %		Mean air press. drop	0.61 ins WC
Face velocity	313 fpm		Dirty air press. drop	1.00 ins WC
Face area	75.5 ft2		Access	Side
Air volume	23600 cfm			

BANK ARRANGEMENT		
No. of filters	Size H x W x D	
24	24.00 x 20.00 x 2.00	ins

DOOR DATA			
Door location	Drive side	Window size	None
Door width	28 ins	Light	None
Door opening	Outward		

SPECIAL			
Intersept Antimicrobial treatment			
Tread Plate floor liner	None		
Liner	(As casing details)		
Insulation	(As casing details)		
Sound baffles	None		
Special static pressure	-	ins WC	Filter Gauge None

VFD / STARTER / DISCONNECT DATA

Selection type	VFD	Vendor	Danoss
Auxiliary Control	None	Voltage	575
-	None		
Mounting	Door Side	H x W x D	22.05 x 12.03 x 11.39 ins
Enclosure	NEMA 1	Coil Voltage	N/A
Line Reactor	None	Hand Off Auto Switch	None
24V Ctrl Transformer	None	120V Ctl Transformer	None

NOTES

Supply fan performance is certified in accordance with the Central Station Air-Handling Unit Certification Program, which is based on ARI Standard 430.

As a standalone component, unit meets or exceeds requirements of ASHRAE 90.1 - 1999. The approving authority is responsible for compliance of multi-component building systems.

SHIPPING SECTION DETAILS

	Length (inches)	Weight (lb)	
Section 1	74	1979	
Section 2	68	2619	
Section 3	80	3454	
TOTALS	222.00 (Lower level total)	8052 (Entire unit weight)	

	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
UNIT SOUND POWER (PWL)	80	80	81	81	82	75	74	72	69

FISSION AIR HANDLING UNIT TECHNICAL DATA

Date Saved : 6/23/2008

JOB NAME	ACME Othertown	REP. OFFICE	HTC Eng (Toronto)
JOB DESCRIPTION	Rooftop HVAC installation	SALESPERSON	Bear Conditioner
MODEL NUMBER	CAH050GDAC	ENGINEER	BC
UNIT TAGGING	H04	VERSION	8.61

Unit configuration	Inline horizontal		
Drive (handing) location	Right		
	SUPPLY		RETURN / EXHAUST
Air volume	23600		s cfm
Altitude	0		ft
Turning loss	0.00		in WC.
External static	1.50		in WC.
Total static	2.98		in WC.
External H x W	80 x 120 (Not including base rails)		ins

CASING DETAILS	
Outer panel	Standard G90 galv steel (unpainted)
Liner	Galvanized steel (Unless noted per section)
Insulation	R-13 Injected Foam (Unless noted per section)
Frame	2 ins
Base	6" formed channel
Sound baffles	None (unless noted per section)
Tread Plate floor liner	None (unless noted per section)

1 MIXING BOX(62 ins)			SECTION 1
Drip pan	None	Drip side	-
	OUTSIDE AIR	RETURN AIR	
Length x Width	36.00 x 116.00	No opening	ins
Location	Top	-	
Dampers	UltraSeal Low Leak	None	
Actuation	-	-	
Rated cfm	23600	23600	cfm
Air pressure drop	0.08		in WC

FILTER DATA				
Type	Pleated (MERV 8)		Clean air press. drop	0.22 ins WC
Efficiency	70 %		Mean air press. drop	0.61 ins WC
Face velocity	313 fpm		Dirty air press. drop	1.00 ins WC
Face area	75.5 ft2		Access	Side
Air volume	23600 cfm			

BANK ARRANGEMENT		
No. of filters	Size H x W x D	
24	24.00 x 20.00 x 2.00	ins

DOOR DATA			
Door location	Drive side	Window size	None
Door width	28 ins	Light	None
Door opening	Outward		

SPECIAL			
Intersept Antimicrobial treatment			
Tread Plate floor liner	None		
Liner	(As casing details)		
Insulation	(As casing details)		
Sound baffles	None		
Special static pressure	-	ins WC	Filter Gauge None

VFD / STARTER / DISCONNECT DATA

Selection type	VFD	Vendor	Danoss
Auxiliary Control	None	Voltage	575
-	None		
Mounting	Door Side	H x W x D	22.05 x 12.03 x 11.39 ins
Enclosure	NEMA 1	Coil Voltage	N/A
Line Reactor	None	Hand Off Auto Switch	None
24V Ctrl Transformer	None	120V Ctl Transformer	None

NOTES

Supply fan performance is certified in accordance with the Central Station Air-Handling Unit Certification Program, which is based on ARI Standard 430.

As a standalone component, unit meets or exceeds requirements of ASHRAE 90.1 - 1999. The approving authority is responsible for compliance of multi-component building systems.

SHIPPING SECTION DETAILS

	Length (inches)	Weight (lb)	
Section 1	74	1979	
Section 2	68	2619	
Section 3	80	3454	
TOTALS	222.00 (Lower level total)	8052 (Entire unit weight)	

	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
UNIT SOUND POWER (PWL)	82	85	83	82	80	79	77	75	75

FISSION AIR HANDLING UNIT TECHNICAL DATA

Date Saved : 6/23/2008

JOB NAME	ACME Othertown	REP. OFFICE	HTC Eng (Toronto)
JOB DESCRIPTION	Rooftop HVAC installation	SALESPERSON	Bear Conditioner
MODEL NUMBER	CAH050GDAC	ENGINEER	BC
UNIT TAGGING	H05	VERSION	8.61

Unit configuration	Inline horizontal		
Drive (handing) location	Right		
	SUPPLY		RETURN / EXHAUST
Air volume	23600		s cfm
Altitude	0		ft
Turning loss	0.00		in WC.
External static	1.50		in WC.
Total static	2.98		in WC.
External H x W	80 x 120 (Not including base rails)		ins

CASING DETAILS	
Outer panel	Standard G90 galv steel (unpainted)
Liner	Galvanized steel (Unless noted per section)
Insulation	R-13 Injected Foam (Unless noted per section)
Frame	2 ins
Base	6" formed channel
Sound baffles	None (unless noted per section)
Tread Plate floor liner	None (unless noted per section)

1 MIXING BOX(62 ins)			SECTION 1
Drip pan	None	Drip side	-
	OUTSIDE AIR	RETURN AIR	
Length x Width	36.00 x 116.00	No opening	ins
Location	Top	-	
Dampers	UltraSeal Low Leak	None	
Actuation	-	-	
Rated cfm	23600	23600	cfm
Air pressure drop	0.08		in WC

FILTER DATA				
Type	Pleated (MERV 8)		Clean air press. drop	0.22 ins WC
Efficiency	70 %		Mean air press. drop	0.61 ins WC
Face velocity	313 fpm		Dirty air press. drop	1.00 ins WC
Face area	75.5 ft2		Access	Side
Air volume	23600 cfm			

BANK ARRANGEMENT		
No. of filters	Size H x W x D	
24	24.00 x 20.00 x 2.00	ins

DOOR DATA			
Door location	Drive side	Window size	None
Door width	28 ins	Light	None
Door opening	Outward		

SPECIAL			
Intersept Antimicrobial treatment			
Tread Plate floor liner	None		
Liner	(As casing details)		
Insulation	(As casing details)		
Sound baffles	None		
Special static pressure	-	ins WC	Filter Gauge None

VFD / STARTER / DISCONNECT DATA

Selection type	VFD	Vendor	Danoss
Auxiliary Control	None	Voltage	575
-	None		
Mounting	Door Side	H x W x D	22.05 x 12.03 x 11.39 ins
Enclosure	NEMA 1	Coil Voltage	N/A
Line Reactor	None	Hand Off Auto Switch	None
24V Ctrl Transformer	None	120V Ctl Transformer	None

NOTES

Supply fan performance is certified in accordance with the Central Station Air-Handling Unit Certification Program, which is based on ARI Standard 430.

As a standalone component, unit meets or exceeds requirements of ASHRAE 90.1 - 1999. The approving authority is responsible for compliance of multi-component building systems.

SHIPPING SECTION DETAILS

	Length (inches)	Weight (lb)	
Section 1	74	1979	
Section 2	68	2619	
Section 3	80	3454	
TOTALS	222.00 (Lower level total)	8052 (Entire unit weight)	

	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
UNIT SOUND POWER (PWL)	80	80	81	81	82	75	74	72	69

FISSION AIR HANDLING UNIT TECHNICAL DATA

Date Saved : 6/23/2008

JOB NAME	ACME Othertown	REP. OFFICE	HTC Eng (Toronto)
JOB DESCRIPTION	Rooftop HVAC installation	SALESPERSON	Bear Conditioner
MODEL NUMBER	CAH050GDAC	ENGINEER	BC
UNIT TAGGING	H12	VERSION	8.61

Unit configuration	Inline horizontal		
Drive (handing) location	Right		
	SUPPLY		RETURN / EXHAUST
Air volume	23600		s cfm
Altitude	0		ft
Turning loss	0.00		in WC.
External static	1.50		in WC.
Total static	2.98		in WC.
External H x W	80 x 120 (Not including base rails)		ins

CASING DETAILS	
Outer panel	Standard G90 galv steel (unpainted)
Liner	Galvanized steel (Unless noted per section)
Insulation	R-13 Injected Foam (Unless noted per section)
Frame	2 ins
Base	6" formed channel
Sound baffles	None (unless noted per section)
Tread Plate floor liner	None (unless noted per section)

1 MIXING BOX(62 ins)			SECTION 1
Drip pan	None	Drip side	-
	OUTSIDE AIR	RETURN AIR	
Length x Width	36.00 x 116.00	No opening	ins
Location	Top	-	
Dampers	UltraSeal Low Leak	None	
Actuation	-	-	
Rated cfm	23600	23600	cfm
Air pressure drop	0.08		in WC

FILTER DATA				
Type	Pleated (MERV 8)		Clean air press. drop	0.22 ins WC
Efficiency	70 %		Mean air press. drop	0.61 ins WC
Face velocity	313 fpm		Dirty air press. drop	1.00 ins WC
Face area	75.5 ft2		Access	Side
Air volume	23600 cfm			

BANK ARRANGEMENT		
No. of filters	Size H x W x D	
24	24.00 x 20.00 x 2.00	ins

DOOR DATA			
Door location	Drive side	Window size	None
Door width	28 ins	Light	None
Door opening	Outward		

SPECIAL			
Intersept Antimicrobial treatment			
Tread Plate floor liner	None		
Liner	(As casing details)		
Insulation	(As casing details)		
Sound baffles	None		
Special static pressure	-	ins WC	Filter Gauge None

VFD / STARTER / DISCONNECT DATA

Selection type	VFD	Vendor	Danoss
Auxiliary Control	None	Voltage	575
-	None		
Mounting	Door Side	H x W x D	22.05 x 12.03 x 11.39 ins
Enclosure	NEMA 1	Coil Voltage	N/A
Line Reactor	None	Hand Off Auto Switch	None
24V Ctrl Transformer	None	120V Ctl Transformer	None

NOTES

Supply fan performance is certified in accordance with the Central Station Air-Handling Unit Certification Program, which is based on ARI Standard 430.

As a standalone component, unit meets or exceeds requirements of ASHRAE 90.1 - 1999. The approving authority is responsible for compliance of multi-component building systems.

SHIPPING SECTION DETAILS

	Length (inches)	Weight (lb)	
Section 1	74	1979	
Section 2	68	2619	
Section 3	80	3454	
TOTALS	222.00 (Lower level total)	8052 (Entire unit weight)	

	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
UNIT SOUND POWER (PWL)	78	79	79	79	81	75	73	71	69

FISSION AIR HANDLING UNIT TECHNICAL DATA

Date Saved : 6/23/2008

JOB NAME	ACME Othertown	REP. OFFICE	HTC Eng (Toronto)
JOB DESCRIPTION	Rooftop HVAC installation	SALESPERSON	Bear Conditioner
MODEL NUMBER	CAH050GDAC	ENGINEER	BC
UNIT TAGGING	H13	VERSION	8.61

Unit configuration	Inline horizontal		
Drive (handing) location	Right		
	SUPPLY		RETURN / EXHAUST
Air volume	23600		s cfm
Altitude	0		ft
Turning loss	0.00		in WC.
External static	1.50		in WC.
Total static	2.98		in WC.
External H x W	80 x 120 (Not including base rails)		ins

CASING DETAILS	
Outer panel	Standard G90 galv steel (unpainted)
Liner	Galvanized steel (Unless noted per section)
Insulation	R-13 Injected Foam (Unless noted per section)
Frame	2 ins
Base	6" formed channel
Sound baffles	None (unless noted per section)
Tread Plate floor liner	None (unless noted per section)

1 MIXING BOX(62 ins)			SECTION	1
Drip pan	None	Drip side	-	
	OUTSIDE AIR	RETURN AIR		
Length x Width	36.00 x 116.00	No opening		ins
Location	Top	-		
Dampers	UltraSeal Low Leak	None		
Actuation	-	-		
Rated cfm	23600	23600		cfm
Air pressure drop	0.08			in WC

FILTER DATA				
Type	Pleated (MERV 8)		Clean air press. drop	0.22 ins WC
Efficiency	70 %		Mean air press. drop	0.61 ins WC
Face velocity	313 fpm		Dirty air press. drop	1.00 ins WC
Face area	75.5 ft2		Access	Side
Air volume	23600 cfm			

BANK ARRANGEMENT			
No. of filters	Size H x W x D		
24	24.00 x 20.00 x 2.00	ins	

DOOR DATA			
Door location	Drive side	Window size	None
Door width	28 ins	Light	None
Door opening	Outward		

SPECIAL			
Intersept Antimicrobial treatment			
Tread Plate floor liner	None		
Liner	(As casing details)		
Insulation	(As casing details)		
Sound baffles	None		
Special static pressure	-	ins WC	Filter Gauge None

VFD / STARTER / DISCONNECT DATA

Selection type	VFD	Vendor	Danoss
Auxiliary Control	None	Voltage	575
-	None		
Mounting	Door Side	H x W x D	22.05 x 12.03 x 11.39 ins
Enclosure	NEMA 1	Coil Voltage	N/A
Line Reactor	None	Hand Off Auto Switch	None
24V Ctrl Transformer	None	120V Ctl Transformer	None

NOTES

Supply fan performance is certified in accordance with the Central Station Air-Handling Unit Certification Program, which is based on ARI Standard 430.

As a standalone component, unit meets or exceeds requirements of ASHRAE 90.1 - 1999. The approving authority is responsible for compliance of multi-component building systems.

SHIPPING SECTION DETAILS

	Length (inches)	Weight (lb)	
Section 1	74	1979	
Section 2	68	2619	
Section 3	80	3454	
TOTALS	222.00 (Lower level total)	8052 (Entire unit weight)	

	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
UNIT SOUND POWER (PWL)	78	79	79	79	81	75	73	71	69

FISSION AIR HANDLING UNIT TECHNICAL DATA

Date Saved : 6/23/2008

JOB NAME	ACME Othertown	REP. OFFICE	HTC Eng (Toronto)
JOB DESCRIPTION	Rooftop HVAC installation	SALESPERSON	Bear Conditioner
MODEL NUMBER	CAH050GDAC	ENGINEER	BC
UNIT TAGGING	H14	VERSION	8.61

Unit configuration	Inline horizontal		
Drive (handing) location	Right		
	SUPPLY		RETURN / EXHAUST
Air volume	23600		s cfm
Altitude	0		ft
Turning loss	0.00		in WC.
External static	1.50		in WC.
Total static	2.98		in WC.
External H x W	80 x 120 (Not including base rails)		ins

CASING DETAILS	
Outer panel	Standard G90 galv steel (unpainted)
Liner	Galvanized steel (Unless noted per section)
Insulation	R-13 Injected Foam (Unless noted per section)
Frame	2 ins
Base	6" formed channel
Sound baffles	None (unless noted per section)
Tread Plate floor liner	None (unless noted per section)

1 MIXING BOX(62 ins)			SECTION 1
Drip pan	None	Drip side	-
	OUTSIDE AIR	RETURN AIR	
Length x Width	36.00 x 116.00	No opening	ins
Location	Top	-	
Dampers	UltraSeal Low Leak	None	
Actuation	-	-	
Rated cfm	23600	23600	cfm
Air pressure drop	0.08		in WC

FILTER DATA				
Type	Pleated (MERV 8)		Clean air press. drop	0.22 ins WC
Efficiency	70 %		Mean air press. drop	0.61 ins WC
Face velocity	313 fpm		Dirty air press. drop	1.00 ins WC
Face area	75.5 ft2		Access	Side
Air volume	23600 cfm			

BANK ARRANGEMENT		
No. of filters	Size H x W x D	
24	24.00 x 20.00 x 2.00	ins

DOOR DATA			
Door location	Drive side	Window size	None
Door width	28 ins	Light	None
Door opening	Outward		

SPECIAL			
Intersept Antimicrobial treatment			
Tread Plate floor liner	None		
Liner	(As casing details)		
Insulation	(As casing details)		
Sound baffles	None		
Special static pressure	-	ins WC	Filter Gauge None

VFD / STARTER / DISCONNECT DATA

Selection type	VFD	Vendor	Danoss
Auxiliary Control	None	Voltage	575
-	None		
Mounting	Door Side	H x W x D	22.05 x 12.03 x 11.39 ins
Enclosure	NEMA 1	Coil Voltage	N/A
Line Reactor	None	Hand Off Auto Switch	None
24V Ctrl Transformer	None	120V Ctl Transformer	None

NOTES

Supply fan performance is certified in accordance with the Central Station Air-Handling Unit Certification Program, which is based on ARI Standard 430.

As a standalone component, unit meets or exceeds requirements of ASHRAE 90.1 - 1999. The approving authority is responsible for compliance of multi-component building systems.

SHIPPING SECTION DETAILS

	Length (inches)	Weight (lb)	
Section 1	74	1979	
Section 2	68	2619	
Section 3	80	3454	
TOTALS	222.00 (Lower level total)	8052 (Entire unit weight)	

	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
UNIT SOUND POWER (PWL)	78	79	79	79	81	75	73	71	69

APPENDIX F INSIGNIFICANT NOISE SOURCES

Table F-1: Insignificant Noise Sources

Item	Equipment Tag (ESDM ID)	Source Description
1	S-09 (S9)	Tank Vent
2	S11	General Natural Vent building ventilation
3	H16	Natural Gas Hot Water Tank Stack

APPENDIX G

SAMPLE CALCULATIONS

ACME OTHERTOWN MODEL SETUP PARAMETERS

CALCULATION CONFIGURATION

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (m)	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (m)	1000.00
Min. Length of Section (m)	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	235.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rcvr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (°C)	10
rel. Humidity (%)	70
Ground Absorption G	1.00
Wind Speed for Dir. (m/s)	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (Schall 03)	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

NOISE SOURCES

Noise Source Library

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
HVAC Stack	H1	Lw		88.9	89.8	87.3	86.7	84.6	80.5	76.5	73.7	69.9	86.3	95.1	0.0
HVAC Stack	H2	Lw		78.0	79.0	79.0	79.0	81.0	75.0	73.0	71.0	69.0	81.9	87.0	0.0
HVAC Stack	H3	Lw		80.0	80.0	81.0	81.0	82.0	75.0	74.0	72.0	69.0	82.7	88.4	0.0
HVAC Stack	H4	Lw		82.0	85.0	83.0	82.0	80.0	79.0	77.0	75.0	75.0	84.6	90.5	0.0
Process Vent/Stack	S1	Lw		100.4	100.7	103.3	106.6	104.5	98.9	94.7	89.6	85.5	105.2	111.1	0.0
Process Vent/Stack	S2	Lw		102.6	99.7	103.0	105.8	101.5	97.7	92.9	87.1	81.5	103.4	110.3	0.0
Process Vent/Stack	S6	Lw		105.3	102.1	104.4	105.1	101.3	95.3	91.5	87.6	83.3	102.5	111.1	0.0
Process Vent/Stack	S7	Lw		108.5	107.0	111.4	106.8	101.9	99.2	95.9	90.1	84.2	105.1	115.2	0.0
Process Vent/Stack	S8	Lw		102.2	100.4	103.6	104.1	105.2	99.2	93.3	88.3	82.9	105.1	110.8	0.0
Boiler Stack	H17	Lw		98.6	100.3	97.3	98.8	97.5	100.5	97.1	99.1	96.0	105.5	108.1	0.0
HVAC Stack	H12	Lw		78.0	79.0	79.0	79.0	81.0	75.0	73.0	71.0	69.0	81.9	87.0	0.0
HVAC Stack	H13	Lw		78.0	79.0	79.0	79.0	81.0	75.0	73.0	71.0	69.0	81.9	87.0	0.0
HVAC Stack	H14	Lw		78.0	79.0	79.0	79.0	81.0	75.0	73.0	71.0	69.0	81.9	87.0	0.0
HVAC Stack	H5	Lw		80.0	80.0	81.0	81.0	82.0	75.0	74.0	72.0	69.0	82.7	88.4	0.0
Process Vent/Stack	S5	Lw		92.9	98.8	102.8	105.9	105.2	99.8	94.9	89.1	83.7	105.6	110.6	0.0
HVAC Stack	H6	Lw		79.0	77.2	82.7	84.7	79.1	74.2	75.3	71.9	66.6	82.5	88.9	0.0
HVAC Stack	H8	Lw		85.7	91.6	92.1	88.1	84.2	78.9	74.5	70.1	65.1	85.9	96.5	0.0
HVAC Stack	H9	Lw		79.0	77.2	82.7	83.5	78.6	74.2	74.8	71.1	66.1	81.9	88.4	0.0
HVAC Stack	H10	Lw		85.3	86.7	89.7	83.7	79.1	74.3	70.6	66.6	62.1	81.6	93.2	0.0
HVAC Stack	H11	Lw		92.8	92.9	96.9	95.8	94.3	89.6	85.4	80.4	74.9	95.4	102.2	0.0
HVAC Stack	H7	Lw		92.0	90.2	95.2	95.0	90.8	87.2	89.2	87.7	82.6	95.6	100.9	0.0
Process Vent/Stack	S3	Lw		116.0	115.4	119.5	118.3	114.6	110.3	108.4	103.8	98.4	116.9	124.5	0.0
Process Vent/Stack	S4	Lw		98.6	97.5	103.3	106.6	104.8	98.9	94.7	92.0	86.7	105.5	110.9	0.0
Blower on Tanker Truck	TRUCKBLOW	Lw		103.8	114.5	106.3	107.4	105.4	114.2	111.5	106.7	93.8	117.3	119.5	0.0
Cooling Coil Fan	CCFAN	Lw		100.0	106.0	110.0	116.0	115.0	113.0	108.0	102.0	96.0	117.1	120.6	0.0
Process Vent/Stack Silenced	S3s	Lw		116.0	113.4	114.5	111.3	104.6	99.3	98.4	96.8	92.4	108.1	120.4	0.0
Cooling Condensing Coil Compressor	CCCOMP	Lw		98.0	101.0	98.0	99.0	98.0	95.0	93.0	92.0	71.0	100.8	106.6	0.0
HVAC Stack	H15	Lw		85.3	86.7	89.7	83.7	79.1	74.3	70.6	66.6	62.1	81.6	93.2	0.0
Process Vent/Stack Silenced	S4s	Lw		98.6	95.5	98.3	99.6	94.8	87.9	84.7	85.0	80.7	96.4	104.9	
Delivery Truck	TRUCK	Lw		105.8	106.8	101.8	98.1	96.1	97.5	93.7	88.6	83.6	101.2	110.8	0.0

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day (dBA)	Evening (dBA)	Night (dBA)	Type	Value	norm. dB(A)	Day dB(A)	Evening dB(A)	Night dB(A)	R	Area (m²)		Day (min)	Special (min)	Night (min)	(dB)	(Hz)		(m)		X (m)	Y (m)	Z (m)
HVAC Stack		H1	86.3	86.3	86.3	Lw	H1		0.0	0.0	0.0							0.0		(none)	1.50	g	595568.78	4841621.12	254.70
HVAC Stack		H2	81.9	81.9	81.9	Lw	H2		0.0	0.0	0.0							0.0		(none)	1.50	g	595568.78	4841596.30	254.70
HVAC Stack		H3	82.7	82.7	82.7	Lw	H3		0.0	0.0	0.0							0.0		(none)	1.50	g	595568.78	4841573.52	254.70
HVAC Stack		H4	84.6	84.6	84.6	Lw	H4		0.0	0.0	0.0							0.0		(none)	1.50	g	595568.78	4841545.44	254.70
Process Vent/Stack		S1	105.2	105.2	105.2	Lw	S1		0.0	0.0	0.0							0.0		(none)	3.00	g	595585.32	4841606.88	256.20
Process Vent/Stack		S2	103.4	103.4	103.4	Lw	S2		0.0	0.0	0.0							0.0		(none)	3.00	g	595595.49	4841567.01	256.20
Process Vent/Stack		S6	102.5	102.5	102.5	Lw	S6		0.0	0.0	0.0							0.0		(none)	3.00	g	595603.63	4841537.30	256.20
Process Vent/Stack		S7	105.1	105.1	105.1	Lw	S7		0.0	0.0	0.0							0.0		(none)	3.00	g	595626.42	4841583.69	256.20
Process Vent/Stack		S8	105.1	105.1	105.1	Lw	S8		0.0	0.0	0.0							0.0		(none)	3.00	g	595641.88	4841555.61	256.20
Boiler Stack		H17	105.5	105.5	105.5	Lw	H17		0.0	0.0	0.0							0.0		(none)	3.00	g	595632.52	4841616.24	256.20
HVAC Stack		H12	81.9	81.9	81.9	Lw	H12		0.0	0.0	0.0							0.0		(none)	1.50	g	595674.03	4841603.63	254.70
HVAC Stack		H13	81.9	81.9	81.9	Lw	H13		0.0	0.0	0.0							0.0		(none)	1.50	g	595674.43	4841581.65	254.70
HVAC Stack		H14	81.9	81.9	81.9	Lw	H14		0.0	0.0	0.0							0.0		(none)	1.50	g	595674.84	4841560.09	254.70
HVAC Stack		H5	82.7	82.7	82.7	Lw	H5		0.0	0.0	0.0							0.0		(none)	1.50	g	595667.92	4841539.46	254.70
Process Vent/Stack		S5	105.6	105.6	105.6	Lw	S5		0.0	0.0	0.0							0.0		(none)	3.00	g	595699.66	4841575.55	256.20
HVAC Stack		H6	82.5	82.5	82.5	Lw	H6		0.0	0.0	0.0							0.0		(none)	1.50	g	595695.59	4841539.46	254.70
HVAC Stack		H8	85.9	85.9	85.9	Lw	H8		0.0	0.0	0.0							0.0		(none)	1.50	g	595721.05	4841632.11	254.70
HVAC Stack		H9	81.9	81.9	81.9	Lw	H9		0.0	0.0	0.0							0.0		(none)	1.50	g	595721.05	4841610.95	254.70
HVAC Stack		H10	81.6	81.6	81.6	Lw	H10		0.0	0.0	0.0							0.0		(none)	1.50	g	595721.05	4841588.57	254.70
HVAC Stack		H11	95.4	95.4	95.4	Lw	H11		0.0	0.0	0.0							0.0		(none)	1.50	g	595721.05	4841564.16	254.70
HVAC Stack		H7	95.6	95.6	95.6	Lw	H7		0.0	0.0	0.0							0.0		(none)	1.50	g	595723.26	4841539.46	254.70
HVAC Stack		H15	81.6	81.6	81.6	Lw	H15		0.0	0.0	0.0							0.0		(none)	1.50	g	595608.11	4841604.03	254.70

October 2008

08-5555-420

October 2008		08-5555-420																						
Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height	Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night	(dB)	(Hz)		(m)	X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)					(m)	(m)	(m)
Process Vent/Stack Silenced		S3s	108.1	108.1	108.1	Lw	S3s		0.0	0.0	0.0							0.0		(none)	3.00	g 595737.10	4841615.83	256.20
Process Vent/Stack Silenced		S4s	96.4	96.4	96.4	Lw	S4s		0.0	0.0	0.0							0.0		(none)	3.00	g 595737.10	4841609.32	256.20
Cooling Condensing Coil Compressor		CCCOMP	100.8	100.8	100.8	Lw	CCCOMP		0.0	0.0	0.0							0.0		(none)	0.70	g 595608.98	4841613.96	253.90
Cooling Coil Fan		CCFAN	117.1	117.1	117.1	Lw	CCFAN		0.0	0.0	0.0							0.0		(none)	1.25	g 595608.98	4841613.96	254.45
Blower on Tanker Truck		TRUCKBLOW	122.3	122.3	122.3	Lw	TRUCKBLOW		5.0	5.0	5.0							0.0		(none)	0.75	r 595737.00	4841546.00	245.75
Stack Silencer	-	Sil1	16.1	16.1	16.1	Lw	Sil1		0.0	0.0	0.0							0.0		(none)	3.00	g 595737.10	4841615.83	256.20

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li		Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Moving Pt. Src				
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night				Number		Speed	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(km/h)
Shipping Truck to Receiving		TRUCK	80.2	-22.8	-22.8	61.2	-41.8	-41.8	PWL-Pt	TRUCK		0.0	0.0	0.0							0.0		(none)	2.0	0.0	0.0	20.0
Shipping Truck to Silo		TRUCK	81.5	-21.5	-21.5	61.2	-41.8	-41.8	PWL-Pt	TRUCK		0.0	0.0	0.0							0.0		(none)	2.0	0.0	0.0	20.0

Line Source(s) Geometry

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(m)	(m)	(m)	(m)	(m)	(m)
Shipping Truck to Receiving	2.50	r	595700.17	4841476.55	247.50	245.00
			595707.81	4841480.11	247.50	245.00
			595711.74	4841483.08	247.50	245.00
			595714.47	4841486.02	247.50	245.00
			595716.19	4841490.42	247.50	245.00
			595716.11	4841513.94	247.50	245.00
			595715.47	4841515.52	247.50	245.00
			595712.91	4841516.20	247.50	245.00
			595709.70	4841515.39	247.50	245.00
			595707.75	4841514.80	247.50	245.00
			595706.74	4841513.36	247.50	245.00
			595708.78	4841513.22	247.50	245.00
			595712.19	4841513.73	247.50	245.00
			595714.40	4841514.16	247.50	245.00
			595717.92	4841516.75	247.50	245.00
			595718.13	4841526.92	247.50	245.00
Shipping Truck to Silo	2.50	r	595700.20	4841476.55	247.50	245.00
			595707.85	4841480.11	247.50	245.00
			595711.78	4841483.08	247.50	245.00
			595714.51	4841486.02	247.50	245.00
			595716.23	4841490.42	247.50	245.00
			595716.15	4841513.94	247.50	245.00
			595715.50	4841515.52	247.50	245.00
			595712.95	4841516.20	247.50	245.00
			595709.73	4841515.39	247.50	245.00
			595707.79	4841514.80	247.50	245.00
			595706.78	4841513.36	247.50	245.00
			595708.81	4841513.22	247.50	245.00
			595712.22	4841513.73	247.50	245.00
			595714.44	4841514.16	247.50	245.00
			595718.38	4841515.98	247.50	245.00
			595722.29	4841517.99	247.50	245.00
			595727.44	4841520.97	247.50	245.00
			595732.85	4841523.94	247.50	245.00
			595736.10	4841528.01	247.50	245.00
			595736.64	4841535.31	247.50	245.00
			595737.18	4841541.81	247.50	245.00
			595737.45	4841543.98	247.50	245.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height		
			left	right		horz.	vert.	Begin	End	
					(m)	(m)	(m)	(m)	(m)	
Bar-CC								2.20	g	
Bar-CC								2.20	g	
Bar-CC								2.20	g	

Barrier(s) Geometry

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates			
			left	right		horz.	vert.	Begin	End	x	y	z	Ground
					(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Bar-CC								2.20	g	595610.72	4841612.43	255.40	245.00
										595610.72	4841615.34	255.40	245.00
Bar-CC								2.20	g	595610.72	4841615.34	255.40	245.00
										595607.13	4841615.34	255.40	245.00
Bar-CC								2.20	g	595607.13	4841615.34	255.40	245.00
										595607.13	4841612.30	255.40	245.00

BUILDING(S)**Building(s)**

Name	M.	ID	RB	Residents	Absorption	Height	
						Begin	
						(m)	
Acme Plant				0		8.20	r

Building(s) Geometry

Name	M.	ID	RB	Residents	Absorption	Height	Coordinates				
						Begin	x	y	z	Ground	
						(m)	(m)	(m)	(m)	(m)	
Acme Plant				0		8.20	r	595551.00	4841528.00	253.20	245.00
								595617.00	4841528.00	253.20	245.00
								595617.00	4841549.00	253.20	245.00
								595658.00	4841549.00	253.20	245.00
								595658.00	4841528.00	253.20	245.00
								595728.00	4841528.00	253.20	245.00
								595728.00	4841549.00	253.20	245.00
								595747.00	4841549.00	253.20	245.00
								595747.00	4841639.00	253.20	245.00
								595697.00	4841639.00	253.20	245.00
								595697.00	4841615.00	253.20	245.00
								595647.00	4841615.00	253.20	245.00
								595647.00	4841624.00	253.20	245.00
								595628.00	4841624.00	253.20	245.00
								595628.00	4841639.00	253.20	245.00
								595551.00	4841639.00	253.20	245.37

GROUND ABSORPTION

Ground Absorption Area(s)

Name	M.	ID	G
			0.0

Ground Absorption Area(s) Geometry

Name	M.	ID	G	Coordinates	
				x	y
				(m)	(m)
			0.0	595552.88	4841637.32
				595552.55	4841529.69
				595615.36	4841529.01
				595615.02	4841550.74
				595658.48	4841550.40
				595658.82	4841530.71
				595726.04	4841529.69
				595725.03	4841550.74
				595745.40	4841550.06
				595745.74	4841638.00
				595698.54	4841637.66
				595698.54	4841613.21
				595644.22	4841613.55
				595644.22	4841622.04
				595626.22	4841622.38
				595626.56	4841637.66

Receptor Noise Impact Level(s)

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height	Coordinates		
			Day	Ln	Day	Ln	Type	Auto	Noise Type		X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)	(m)	(m)	(m)
POR1			52.2	52.2	0.0	0.0	x		Total	4.50	596270.42	4841444.38	247.89
POR2			49.5	49.5	0.0	0.0	x		Total	13.50	595635.00	4842059.00	262.69
POR3			48.1	48.1	0.0	0.0	x		Total	1.50	595258.60	4841801.00	250.50
POR4			51.9	51.9	0.0	0.0	x		Total	1.50	595856.02	4841814.09	247.46

Result Table

Receiver	Land Use	Limiting Value		rel. Axis			Lr w/o Noise Control		dL req.		Lr w/ Noise Control		Exceeding		passive NC
Name	ID	Day	Night	Station	Distance	Height	Day	Night	Day	Night	Day	Night	Day	Night	
		dB(A)	dB(A)	m	m	m	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
POR1		0	0	91	540.82	0.39	52.2	52.2	52.2	52.2	0.0	0.0	-	-	-
POR2		0	0	107	525.12	15.19	49.5	49.5	49.5	49.5	0.0	0.0	-	-	-
POR3		0	0	57	532.51	3.00	48.1	48.1	48.1	48.1	0.0	0.0	-	-	-
POR4		0	0	107	294.99	-0.04	51.9	51.9	51.9	51.9	0.0	0.0	-	-	-

UNMITIGATED MODEL PREDICTION RESULTS AT POR4

This section should include appropriate sample sound level calculations and results prior to mitigation for all noise sources and for one (critical) receptor (POR4).

MITIGATED MODEL PREDICTION RESULTS AT POR4

This section should include appropriate sample sound level calculations and results after mitigation for all noise sources and for one (critical) receptor (POR4).

APPENDIX H

ELECTRONIC MODELLING FILES

